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ABSTRACT

This booklet on open education contains seven articles. The first two articles describe the concept of openess and give a description of open education and how it is affected by American values. These articles also discuss some of the differences between open education and traditional education. The third article contains the author's reflections on the ways the ideas and practices associated with the British Infant Schools have accommodated themselves to, and been assimilated by the American educational field. The fourth and fifth articles contain case studies. They explore the success and failure of open education in a variety of settings. Specific details are given which enable the reader to draw his/her own conclusions about what might have been done in trying to achieve some of the goals set forward for open education. The last two articles discuss research on open education and tell where open education has been and where it is going. They state that research has indicated positive results in many aspects of open education, and that this provides a rationale for continued interest in the approach and a basis for further development of research in this area. (RC)

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OPEN EDUCATION: CRITIQUE AND ASSESSMENT

OCT 17 1975

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Contents

Foreword v
Delmo Della-Dora

The Concept of Openness: An Introduction 1
Vincent Rogers and Bud Church

Open Education and American Values: A Tentative Exploration 7
Bud Church

A British View of Open Education in the U.S. 17
Victor Atkins

Opening Up and Making It Work: A Case Study 29
Bud Church

Open With Care: A Case Study 47
Roland Barth

Teachers and Principals Speak 67

What Does Research Say About Open Education? 83
Lyn S. Martin

Open Education in the U.S.:
Where Have We Been and Where Are We Going? 99
Vincent Rogers

4

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Foreword

This is, I believe, an excellent, exciting, and worthwhile publication. The authors have expressed their views lucidly, pointedly, and with a refreshing candor. The audience that will find the booklet to be of help goes far beyond those who are specifically interested in something called "open education." If you have an interest in the improvement of classroom instruction in any of its dimensions, this will be well worth reading.

After 28 years of reading so many of the books and articles published for and by our profession, I find myself either bored with most of what I see or irritated by the shallow, superficial trivia that appears in print. I am delighted to see this exception and congratulate the authors as well as the ASCD Publications Committee and Robert R. Leeper for making it come to pass.

For me the most interesting aspects were the opening sections which describe the concept of "openness," and the description of open education and American values. These helped me rethink and clarify my own notions about why "humanistic" education, "progressive" education, and other holistic approaches to teaching and learning have encountered so many barriers at various times in our history and in our present day.

Other readers may well find the case studies to be of most interest and value since they explore the "success" and "failure" of open education programs in a variety of settings. There are enough specific details given to enable us to arrive at our own conclusions about what we might have done—or might do—in trying to achieve some of the goals set forth for open education.

The concluding sections give a sober account of the prospects for the ideas which characterize open education. Vincent Rogers says in his final sentence, "I hope these ideas contribute toward a more reasoned approach to change in American education and perhaps help to counteract our self-defeating tendency to move with fad and fashion from one extreme to the other, learning little from the past. . . ." I believe the authors have succeeded in that hope. If not it won't be because they didn't try. The rest is up to us.

DELMO DELLA-DORA, *President 1975-76*
Association for Supervision and
Curriculum Development

The Concept of Openness: An Introduction

Vincent Rogers and Bud Church

It was in 1966 and 1967 that we first visited open classrooms in Britain. Both of us came to this experience out of the background of discipline-centered, sequentially organized, concept- and generalization-laden classroom and curriculum work that dominated American education during the first half of the decade of the 60's. We were interested enough to want to see what was happening in Britain, yet conditioned with a considerable skepticism that grew out of our exposure to many of the dominant educational themes of the times.

We came, saw, and were conquered, as were thousands of other Americans who made the pilgrimage. For many of us, we saw in the best of Britain's open schools (and perhaps for the first time in our own educational experience) children deeply involved in the daily life of the school; children who took responsibility for much of their own learning; children who made intelligent choices about what and how to learn and how to spend their time; children who cared about materials, animals, and each other; children who created things and ideas of beauty; children who cared about learning itself.

The British, of course, did not invent all of this. British educators have long been aware of the work of Dewey, Froebel, Montessori, and others whose thinking contrasted sharply with the dominant, more repressive European view of education. British educators (Whitehead, Neill, Nathan and Susan Isaacs, for example) shared in this development, of course, but the movement toward

openness in Britain clearly had its roots in a body of educational thought that has been available to all of us, Americans and British, for many, many years.

During the decade of the 60's however, it was Britain that emerged as the stronghold of child-centered, informal education in Europe and the United States. And it was for this reason that American educators came to Britain in such large numbers at that time.

The exporting of these ideas began at once, through word of mouth and through hundreds of books, journal articles, newspaper and magazine stories, television and radio programs. Britain's balance of payments deficit may be enormous industrially and agriculturally, but in the realm of educational ideas during the past ten years she has become one of the world's leading exporters.

Given all of this activity, movement, and stimulation, how fares open education in the United States in 1976? What changes have the British and other neo-progressive thinkers and practitioners brought to American education? Where and how do we differ from British practice? Can open education succeed on a large scale in America? Where it has succeeded, what factors explain its success and conversely why has it failed when it has failed? How do American teachers and administrators view their experiences in open schools? What does research tell us about open education? And, finally, where does open education go from here? These and other questions will be discussed in the chapters that follow.

What Is "Openness"?

Before delving into these issues, however, it occurred to us that it would probably be wise to make one more attempt to clarify the meaning of "openness," at least as we are using it in this book. There *are* significant differences between the way open teachers (and administrators) believe and behave and the beliefs and behavior of more traditional teachers. There is no "rightness" or "wrongness" attached to such differences. The best open and traditional teachers share many common traits and characteristics—for example, their professional involvement and commitment, their genuine care and concern for children, and their desire to have education be an alive, interesting, and happy experience.

Nevertheless, there are important differences that cannot be and should not be ignored or glossed over.

The traditional teacher sees her or his task as transmitting knowledge and skills, the objectives for which are determined ahead of time with the curriculum essentially prescribed. Tests can measure whether this has been accomplished. Grading can be based on the test's sorting out levels of achievement. The emphasis is on cognitive development; the life of the body, the senses and feelings, are secondary to what happens in the head. Correct answers still dominate. There is concern about being efficient and not wasting time. Content and skills tend to be compartmentalized for efficiency's sake. The excitement of learning tends to depend upon teacher stimulation and external motivation; it is the *teacher* who is primarily inventive and creative in the situation with the children following. A large part of the teacher's role consists of working hard to be inventive and to embellish the prescribed curriculum so it is interesting. Much of the emphasis is on preparing for the next step in learning and for the future in general. There isn't much trust that learning takes place unless the teacher does something that is highly controlled and orderly so that as much as possible he or she is on top of exactly what the children are learning. There are few loose ends. What a child *knows* is ultimately more important than what a child *is*; for the traditional teacher the quality of *knowing* is more important than the quality of *being.*

In open education the teacher is less content-centered and more person-centered. Her or his task is to set up opportunities for learning experiences, both in and out of the classroom, where she or he can watch children and see what they respond to. While she or he has a good idea of the possibilities within the experiences she or he has set up, the actual questions brought to the materials or the activities by the children become the basis for the curriculum and much of the teacher's time is spent helping children pursue those questions, helping them to structure their learning. Consequently, curriculum is generated out of where the children are and what they bring to the situation and is not predetermined. It is difficult to test for this and even more difficult to grade it. No distinction is made between affective and cognitive development. Correct answers aren't so important as good questions; pursuing

questions often results in dead ends which are not mistakes, and certainly not failures, but part of learning. This tends to minimize competition and promote collaboration.

Because it is this process that is important, rather than predetermined achievement or product at a prescribed time, there is more leeway for children to lose themselves in what they do without feeling they are wasting time. Leeway is also given for social time, for childhood is a valued time of life for its own sake. The excitement of the learning is less dependent on the teacher's input and motivational techniques and arises more from the actual engagement of the child with the learning experience which he or she has had a central part in initiating. There are more loose ends that the teacher cannot have control over, but there is a feeling that the teacher does not always have to be on top of everything for legitimate learning to be taking place. The teacher trusts that learning often takes place without him or her. Because the teacher cares about the children there are limits to their behavior. (A totally permissive adult like a totally authoritarian one really does not care much about the well-being of children and the children know it.) For the open teacher what a child *is* is ultimately more important than what he or she *knows*.

Perhaps the basic question we should concern ourselves with is: given the best traditional education and the best open education, do children arrive at different places after 12 years? In many respects, no. Both should have achieved their fullest in terms of skills in reading, writing, math, general knowledge, and cognitive development.

For many parents that is enough to make them choose the traditional which is more orderly and has fewer loose ends; that is, it is safer, more familiar. But as Charity James points out in *Young Lives at Stake*,[1] there is a difference in the way lives are being spent. Do those differences matter at the time so that one group of children will have a different kind of childhood from the other? Over a long period of time, do those differences affect the way children go about learning, the kinds of questions they raise, the feelings they have of control over their own destinies, their willingness to

[1] Charity James. *Young Lives at Stake*. New York: Schocken Books, Inc., 1968.

ponder, the way they wonder about experience and the connections they make, their view of the resources within themselves and outside to draw upon?

Whatever the differences between traditional and open education, they are qualitative not quantitative, perhaps observable but rarely measurable. Ultimately they come down to value judgments not only about two different processes of education, but two different ways of spending one's youth.

Following page: **Leeway is given for social time, for childhood is a valued time of life for its own sake.**

Open Education and American Values: A Tentative Exploration

Bud Church

> The trouble with education may be that it is already dead as a meaningful enterprise, and the efforts of the "establishment" are not attempts to cure symptoms at all, but really a series of episodes of digging up and reburying the corpse.[1]
>
> *James B. Macdonald*

> And you he made alive, when you were dead . . . that he might create . . . one new man in place of two . . . thereby bringing the hostility to an end . . . so making peace.
>
> Ephesians

Running workshops involving other teachers, parents, and college students, I often start by asking them to brainstorm about what qualities come to their minds when they think of young children. The list is almost always the same: active, curious, exploratory, inventive, exuberant, fantasizing, questioning, testing, stretching, wondering, bodily, physical, sensual, literally in touch with the concrete world or things, play-oriented, capable of intense concentration on immediate tasks and interests to the point of "losing time," self-centered but not egotistical. Although there is a difference between a five year old and a twelve year old in regard

[1] James B. Macdonald. "Myths About Instruction." *Educational Leadership* 22 (7): 571-76; May 1965.

to these qualities, the list applies to the whole age range of the elementary school years.

Recently I brainstormed about this at a workshop with a dozen or so psychologists and doctors who work with disturbed children at a mental hospital and significantly—although they represented Rogerians to Skinnerians—they came up with the same list. They speculated that the deviations from this list that they encounter in their work are the result of severely aberrant contingencies in a child's environment and are not fundamentally inherent. In fact, they agreed that if anything were "inherent" in a child, it is the disposition toward the qualities listed above, that these are "normal" or "healthy" until they are thwarted. As Skinner points out in *Walden II,* "No one asks how to motivate a baby. A baby naturally explores everything it can get at, unless restraining forces have already been at work. And this tendency doesn't die out, it's *wiped* out." [2] Children inherently have, then, as George Dennison puts it in the *Lives of Children*, a "gay intelligence" that the environment either promotes or stifles.

Speculating further, these doctors also agreed that the environments of most children seem to work against the healthy development of that gay intelligence. They see the worst cases of that in their work; but almost all children suffer more today either from neglect or abuse (a problem definitely on the increase in our harried world), or from subtle kinds of manipulations and pressures. The 1970 White House Conference on Children exposed a central paradox in our society: on the one hand we seem to worship youth and idealize childhood, while on the other hand adults seem to secretly hate and fear the young. Dr. Albert Solnit, Director of the Child Study Center at Yale, has asked, "Why do Americans really *not* like children?" [3]

Certainly the evidence is in that the schools contribute significantly to thwarting the inherent dispositions of childhood. Why? Why does conventional schooling continue to cherish and reward silence, passivity, docility, compliance, busywork, empty

[2] B. F. Skinner. *Walden II.* New York: Macmillan Publishing Co., Inc., 1948 (paperback edition). p. 123.

[3] Kenneth Keniston. " 'Good Children' (Our Own), 'Bad Children' (Other People's), and the Horrible Work Ethic." *Yale Alumni Magazine*: page 6; April 1974.

abstracting, bits and scraps of information, compartmentalized knowledge, "delaying gratifications for future rewards" as the jargon puts it, prosaic routine?

The most significant difference between open education and conventional schooling is that open education values the inherent childhood dispositions; instead of behaviorally modifying them out of the child, open educators want to preserve and strengthen them as the driving powers behind real learning. Doesn't that make sense? "Is some stereotype of schooling so built into our culture," asks John Goodlad at the conclusion of *Looking Behind the Classroom Door,* "that it virtually shapes the entire enterprise, discouraging or even destroying deviation from it?" [4] The answer, of course, is "Yes." But that only begs the question: Why do we settle for that stereotype?

One answer is that conventional schooling is easier to manage based as it is on uniformity, regimentation, control of various kinds. As a classroom teacher trying to practice open education day in and day out I can appreciate that. Sometimes I long to tell all twenty-five unique bundles of energy in my classroom what to do and no nonsense. But I am convinced that the classroom management is easier at least partly because the stereotype, the accepted pattern, is always easier to manage. If the assumptions and practices of open education were the standard, accepted way of doing things as they are in many British schools, then informal classroom management would be considerably easier and the burden of open educators having to "prove" themselves would be less. Conventional schooling has not prevailed because it is easier; it is easier because it has prevailed. The question still stands: Why has it prevailed?

A deeper answer is that historically this is the pattern of schooling that has developed, shaped by and serving the political, social, and especially the economic, needs of the America of the past hundred years. Now it is entrenched, and although the society has changed since the industrial model became the pattern for schooling, the industrial mentality persists and the schools continue to serve it well. Although there will be complaints from time to time,

[4] John I. Goodlad and M. Frances Klein. *Looking Behind the Classroom Door.* Belmont, Calif.: Wadsworth Publishing Company, 1974. Reprinted by permission.

the society pretty much has the kinds of schools it wants. Until that mentality changes, the schools won't change. For me, however, that still begs the question: Why did the industrial mentality become so entrenched in the first place? Why does it continue to prevail?

Man Differs from Other Creatures

To really explore an answer means raising basic questions about man and his existence, and raising them in fresh ways. To do that we have to listen to voices that are not those of educators, perhaps not even known to educators. I can think of several such voices today, but the one that has struck me for several years as having the most to say about the issue raised here is that of Norman O. Brown in his book *Life Against Death*.[5] Brown's unique interpretation of man and history, based on insights derived from Freud, offers us a valuable perspective from which to look at three related issues: (a) Why schools are as they are; (b) why open education probably will not change things very much; yet (c) why open education is nonetheless a viable and absolutely necessary force to keep alive.

Brown begins with the assumption that whatever else man is, he is a creature; what is unique about an individual is his body. His basic self is a body self—a whole-body self—and his life is meant to be lived through all the organs and senses of his body. Furthermore, when that creature dies, that is the end of the body and hence of the self. Nothing lives on.

Man is different from other creatures, however, in one categorical way. Man's evolvement of a complex nervous system has thrust him across a threshold into a kind of consciousness no other creature has. In no way does this make him less of a creature in regard to death. But it does make him conscious in ways other creatures are not; it gives him the capacity to be "conscious he is conscious." That is, man is a creature that is self-conscious. In this self-consciousness is rooted man's ego-self. Man is the creature with an ego.

Man's self-consciousness makes him aware of certain conditions of his existence of which other creatures are "innocent."

[5] Norman O. Brown. *Life Against Death.* Middletown, Connecticut: Wesleyan University Press, 1959.

The decisive consciousness is of time. Man has an awareness of past, present, and future that no other animal has.

More important, however, is that this awareness of time gives man a realization of his own death that no other creature has. Only man can abstract death, ponder its coming, be preoccupied with its meaning, dwell on it, fear it, try to run from it.

More to the point, each man knows of his own inevitable end, the end of his body and hence the end of his ego, his self. No other animal has to live with that. Animals live as if life and death were a unity. But the human ego dreads the knowledge of its own mortality and flees from it, setting "life against death." "The flight from death," says Brown, "distinguishes men from animals." [6] The flight can take many forms, from suicide (the ultimate solution!) to the elaborate construction of comforting afterlives and rituals for getting there. "To philosophize is to learn how to die," said Socrates. Most men would rather flee.

The result of death-anxiety and the consequent flight from death is repression. Repression is the way the human ego protects itself from dying. What is repressed is the life of the body for it is the body that obviously perishes. In the task of protecting itself, the ego fabricates a duality of mind or spirit or soul as separate from the body and in that way the ego is able to repudiate the body. Consequently the life of the body, the only life we have, is negated. In this way the ego can repress the fact of death, but in doing so ironically has to repress the very organ of life. As Brown puts it, the protective repression results in "a more active form of dying" [7] for it denies and dilutes the quality of livingness the human animal could experience through the only vehicle it has, the body. The repressive project, writes Brown, "turns life into death-in-life." [8]

The point is, argues Brown, that repression cuts us off from "the ultimate essence of our desires and our being [which] is nothing more or less than delight in the active life of all the human body." [9] Freud called this the pleasure-principle. Its activity is play. "Play is the essential mode of activity of a free or of a perfected or of a satisfied humanity," says Brown. He goes on to

[6] *Ibid.*, p. 100.
[7] *Ibid.*, p. 160.
[8] *Ibid.*, p. 285.
[9] *Ibid.*, p. 30.

add, "in play life expresses itself in its fullness; therefore play as an end means that life itself has intrinsic value." [10] Elsewhere Brown claims that "every ordinary man has tasted the paradise of play in his own childhood. Underneath the habits of work in every man lies the immortal instinct for play." [11] Pleasure, joy, happiness, celebration—these are the aims or purposes of being. We are to enjoy.

Most men, if not all, die without ever being alive. "To be awake is to be alive," wrote Thoreau in *Walden*; "I have never yet met a man who was quite awake. How could I have looked him in the face?" I suspect this is closely related to what Arthur Miller meant by his definition of tragedy: "Tragedy arises when you are in the presence of a man who has missed accomplishing his joy." [12] Perhaps that is why the tragic vision catches us so profoundly—none of us can escape the tragic fact, not that we die, but that in our flight-from-death we miss the joy of being. "Ripeness is all," said Lear. "The rest is silence," said Hamlet.

The energies of life which have been repressed can't be eliminated, however. That is another side of the tragedy for they emerge in sublimated and often twisted ways. The result is the activity of culture and history. Man is the animal that makes history. The ego creates culture as a substitute for the living body it knows will die and thereby seeks to gain a kind of immortality through that creation. Things of the world become objects to possess or manipulate rather than activities to participate in. Dead cultural artifacts live on: kingdoms, corporations, governments, industries, investments, fortunes—even books—are "immortal." However, "the more the life of the body passes into things, the less life there is in the body," argues Brown. "The inevitable irony redresses the balance in favor of death. Death is overcome on condition that the real actuality of life pass into these immortal and dead things." [13]

The cultural activity for this sublimating we call work. Man works, heaps up things, makes a name, prepares for the future, to compensate for his final nothingness. As Brown puts it:

[10] *Ibid.*, pp. 33-34.

[11] *Ibid.*, p. 36.

[12] Arthur Miller. "The Nature of Tragedy." *New York Herald Tribune*, March 27, 1949.

[13] Brown, p. 286.

The alienated consciousness is correlative with a money economy. Its root is the compulsion to work. This compulsion to work subordinates man to things, producing at the same time confusion in the valuation of things and devaluation of the human body. It reduces the drives of the human being to greed and competition.[14]

The peculiarly human traits of acquisitiveness, possessiveness, power, competition, greed, aggression, the will to mastery over nature and over other men, are sublimated characteristics of each one's flight from death and consequently are ways of being dead-in-life. "Having" and "getting" substitute for being. Yet they bring no enjoyment or peace. Man's history is a tale of accumulative non-enjoyment.

The ego, in its denial of the body and the senses, allies itself with the life of the mind, with rationality and reason. The head is separated from the rest of the body and replaces the body. This produces, suggests Brown, "an inhuman consciousness whose only currency is abstractions divorced from real life—the industrious, cooly rational, economic, prosaic mind." [15] Abstract knowledge can keep experience at arm's length; it can also be valued and collected like a possession. "Knowing"—especially the narrow scholarship of academia—becomes another substitute for being. Knowledge in this sense is not to be confused with wisdom, as wise men have always warned us.

What we call cultural and historical progress and its attendants—work, wealth, technology, knowledge, power—are in the final analysis not satisfying to man because they do not satisfy the gift of his body. In fact, each new step divides him further from his body and alienates him from his true self. In its flight from death the ego simply finds faster ways to run so that modern man is more fractured, more harried, as he gets more and knows more. "What mankind is doing," claims Brown, "seems to be making itself more unhappy and calling that unhappiness progress." [16] Modern man is more distracted than ever from accomplishing his joy, leaving him dangerously unsatisfied and restless.

This sketchy summary does not do justice to Brown's thought; nor is Brown necessarily the last word on a very complex issue.

[14] *Ibid.*, p. 237.

[15] *Ibid.*, p. 238.

[16] *Ibid.*, p. 16.

But where thousands of others are hacking at the branches, as Thoreau put it, I believe that Brown is at least striking at the root. If nothing else his thought is suggestive in getting at the reasons behind the reasons why adult egos create adult institutions called "schools" in which "to keep young hearts and minds in custody till they are without passion," [17] as Edgar Friedenberg has put it. To avoid death man creates death. Man has a stake in repudiating his body, in repression, in dying, that he isn't going to let some educational romantic deny him. Man has a powerful (Brown would say *"demonic"*) allegiance to time obsessions, work compulsions, rational calculating, economic preoccupations, preparing for the future, busyness, punctuality, uniformity, competition, success, power. Adults want death in the schools, and the schools comply. That is their social function. Drudgery is not an unfortunate outcome of schooling, it is a requirement. Deadness is a behavioral objective.

Brown would see in the titles of recent books and articles about the schools such as "Death at an Early Age," "Our Children Are Dying," "Killers of the Dream," "School Is Dead," "Murder in the Classroom," far more than mere metaphors.

A New Kind of Wholeness

This could be a very pessimistic conclusion (and indeed, Freud ended up a profound pessimist). But Brown, taking his cues from religious insights, is convinced that the life-instinct persists within each of us and that it emerges as a subordinate force in history operating against the death-in-life values clung to by the larger society.

The life-instinct works to promote a kind of union in the psyche or spirit whereby the ego can embrace death as part of life. When that happens, a crucial kind of integration can take place that Brown would call "the resurrection of the body," the title of the last chapter in his book, creating "one new man in place of two" as Paul put it. This integration would bring together the whole body and the head. It would bring together play and work. It would emphasize participating in the space of the here and now, and de-emphasize time preoccupations which make a fractured madness of the present

[17] Edgar Z. Friedenberg. *The Vanishing Adolescent.* New York: Dell Publishing Co., Inc., 1959. p. 37.

and obsess us with the past and future. Integration would mean emphasis on sharing, cooperation, communion, love, rather than competition, compartmentalization, ranking, grading in every sense. It would mean a kind of wholeness. As Dennison has written, "the experience of learning is an experience of wholeness. . . . The young want wholeness. . . . Anything short of this wholeness is not true learning." [18]

These are precisely the values of what today is called "open education," values which educators can trace back through Dewey and Whitehead and Froebel to Rousseau and Pestalozzi and Comenius, and far earlier—values which have always been implicit in the arts and in a certain level of religious thinking when it is not perverted by death-in-life. Open education is the life-instinct operating in the educational sphere. The desire of open education in the schools is to integrate, to make whole, what it finds fractured. Its contradiction of the death-instinct is its social function. Teaching in an open classroom *is* a "subversive activity," not in the Postman/Weingartner sense of trying to disguise its true intentions, but because it goes against the death-in-life values of the dominant culture.

As such, open education is probably not going to make much of an impact any more than life-affirming and informal attempts to reform schooling have made much impact in the past. In the schools the head will continue to have priority over the body; time by the clock will continue its obsessive demands; work will continue to have priority over play; knowing and getting will continue to have priority over being; and forces of division will continue to have priority over forces of union no matter what the words say at the beginning of the faculty handbooks and no matter what educational clichés the teachers and administrators use. Open education is not an idea whose time has come.

Open educators will persist, however, even though many will find that going against the grain is divisive to their own beings, mentally unhealthy, literally "unwholesome," increasingly more exhausting than exhilarating, more work than play. For those who persist it will not matter that its time has not come. Like Dewey, they behave on the conviction that:

[18] George Dennison. *The Lives of Children.* New York: Vintage Books, 1969. pp. 75, 103.

All endeavor for the better is moved by faith in what is possible, not by adherence to the actual. Nor does this faith depend for its moving power upon intellectual assurance or belief that the things worked for must surely prevail and come into embodied existence. . . . The outcome, given our best endeavor, is not with us.[19]

Brown himself suggests that "utopian speculations must come back into fashion." He goes on to say:

Recognition of the world as it is by no means excludes desire or activity to change it in order to bring reality into conformity with the pleasure-principle.[20]

We need to "make conscious the unconscious harmony between 'dialectical' dreamers of all kinds—psychoanalysts, political idealists, mystics, poets, philosophers," [21] Brown contends. It does not matter that he did not include "open educators" in the list! The fact remains that open education represents a secondary progressive and life-affirming function that is in radical opposition to the primary reactionary and repressive function of the schools.

If the life-instinct is related to the values in open education as is argued here, then open educational practices are indications of the surfacing of the life-instinct in one of the most important institutions of the culture—perhaps *the* most important—the school. It is a possibility that each surfacing leaves its mark more definitely even though it is a threat to the dominant values of the culture invested in death-in-life and as a result is ultimately beaten down. Open education may not prevail, but it may leave a critical impact for the future when the life-instinct is an idea whose time has come. As Brown remarks at the end of *Life Against Death*, in a moment of rash utopian speculation, "perhaps our children will live to live a full life." [22] Such a possibility has to continue to impel us.

[19] John Dewey. *A Common Faith*. New Haven, Connecticut: Yale University Press, 1934. Paper edition 1971. p. 23.

[20] Brown, p. 153.

[21] *Ibid.*, p. 322.

[22] *Ibid.*, p. 322.

A British View of Open Education in the U.S.

Victor Atkins

My wife and I left teaching positions in England in 1966 to come to the United States to teach teachers and to study. At about the same time a set of ideas and educational practices, known in the U.S. as open education or the open classroom, made the same transatlantic journey. In 1966, the massive report *Children and Their Primary Schools*, more popularly known as the Plowden Report,[1] was published. It documented the fact that a set of fresh ideas about early schooling experiences had made a substantial difference to what went on in a third of Britain's primary schools, and had made some impact on another third.

The following year saw the publication in the *New Republic* of Joseph Featherstone's series of articles "The Primary School Revolution in Britain" [2] which brought to the attention of the American public the developments across the Atlantic. The timing of this series seems to have been especially propitious. Critics like Goodman, Friedenberg, and Kohl were characterizing the nation's schools as joyless and absurd, while a series of expensive attempts to change what happened in schools—from New Math to Sensitivity Training—seemed to have made little difference.

The news from Britain seemed to suggest that schools could be places which fostered exciting learning and that this could

[1] Lady Bridget Plowden *et al. Children and Their Primary Schools: A Report of the Central Advisory Council in Education.* London: Her Majesty's Stationery Office, 1966.

[2] Joseph Featherstone. "The Primary School Revolution in England." *New Republic.* August and September 1967.

happen, not only in few special schools but in a large proportion of the state schools of a nation. The "Open Education Movement" was off and rolling!

When my wife and I entered the United States we were aware that beneath the often deceptively similar language there were concealed some rather different basic assumptions. It was one thing to learn to call a "lorry" a "truck" and to remember that those "trucks" drove on an unusual side of the road, but as we began to explore the educational system we began to see that there were other differences, less conventional and more fundamental, in such things as the purposes of education or the appropriate relationship between a school system and the community in which it is imbedded. We had to understand these differences, adjust to them, embrace some of them eagerly and attempt to resist others. It was, and continues to be, an exciting and exhausting cross-cultural experience.

Reflections on Openness

While undergoing this experience we have also spent quite a lot of time looking at how the educational ideas which came across at about the same time as we did have survived the journey. What follows represents one person's reflections on the ways those ideas and practices associated with the British Infant Schools have accommodated themselves to, and been assimilated by, the American educational field. It is written by someone who stands with one foot in the culture in which he was born and raised, and the other in the country in which he has spent the past decade of his life; who has respect for, and concerns about, the assumptions of each culture, and who believes that each has something to learn from the other.

Open education is not the brainchild of a single great educational philosopher, although the ideas of Froebel and Dewey seem to lie behind many of its beliefs. It is not the product of a school administrator of great vision, although such men as Stewart Mason in Leicestershire and Sir Alec Clegg in Yorkshire have been of great significance in its growth and development. The influence of Jean Piaget can be seen at work in it, but so can the impact of the wartime evacuation of children and their teachers

from the cities to new rural settings. The Hadow Report of 1931 on *The Primary School* [3] played its part, but so did the fact that class sizes in Infant and Junior Schools were up to almost fifty children. What is happening in these schools is overdetermined in the sense in which Freud used that term, representing the flowing together of a large number of separate influences and strains, strengths and weaknesses, which go together to make a culture.

Open education in the United States has not yet achieved the impact that its advocates have hoped for, and it seems to me that part of the reason is that insufficient attention has been given to the fact that what is involved is taking ideas which have deep roots in the soil of one culture and attempting to transplant them to a different society. While I believe that Durkheim was exaggerating when he said that "Education is only the image and reflection of society," there are social, cultural, economic, educational, and political differences between the two societies which, if ignored, make a fruitful transplant of educational ideas and practices very difficult to achieve. Cultures are complex, and generalizations about them are dangerous, and yet there do seem to me to be broad differences, some of which are impeding the early translation of educational practices from one culture to another.

Attitude Toward Authority

One area of clear cultural difference seems to exist with regard to attitude toward authority. I would like to suggest a continuum for such attitudes to authority. Toward one end would be an attitude of respect for, and acceptance of, duly constituted authority. At its extreme this could become mindless submission. Toward the other end of the continuum would be a questioning and skeptical attitude toward authority, which at its extreme could become mindless rejection of authority. It seems clear, as a broad generalization, that British society comes somewhat closer to the "acceptance of authority" end of the continuum than does American society. This fact has implications for attempts to introduce open education in America.

For one thing, within this British attitude of somewhat greater

[3] Sir Henry Hadow *et al. The Primary School.* London: Her Majesty's Stationery Office, 1931.

acceptance of authority there is a strong tendency to feel that "the school knows best." Whatever it does to, for, or with the child is generally assumed to be correct. Parent associations are not as significant a political influence on the school as they frequently seem to be in the United States, and parents tend to come to the school to be told how their child is faring. The degree of parent involvement described by Barth in Chapter 4 of this booklet would be unheard of. Thus when teachers in the United Kingdom began to develop new ways of arranging time, space, and the curriculum, parents were probably neither more nor less puzzled than American parents but there was little parent or community challenge to what was being attempted.

Teachers working toward open education in the United States have not generally been so free from challenges. They have been asked in no uncertain terms to justify their "experiments" with children, and to demonstrate the efficacy of what they are attempting as a way of producing either success in the basic skills or entry into a prestigious college, depending on the particular concerns of the parent group involved. These challenges to a new way of structuring the learning process come at a time when teachers are in a rather vulnerable position. Because they are trying a new approach to teaching they have given up those practices with which they have experience, to take on new and unfamiliar ways of helping students learn. The new ways seem a little awkward at first. Things that were dealt with almost by second nature in the past require more thought now as teachers begin to explore the implications of a different approach to teaching. Thus teachers in this new situation will not feel the same confidence in replying to challenging questions as they might have done the previous year or as they will after three or four years of the new approach. And in addition they do not yet have the support of tangible results which they can show to parents. The teacher can explain to parents that attempts to compare open classroom results with those of more regular classrooms seem to indicate that achievement in reading and math remains about the same, while children in open classrooms seem to show such attitudinal differences as great curiosity and enjoyment of learning. Yet the teacher still cannot say, with certainty and confidence, "My class is reading just as well this year and enjoying it more."

Problems of Freedom and of Boundaries

Just as a British teacher beginning a more open approach in the classroom is likely to have his or her authority in so doing more accepted than may his or her American colleague, so too the British students will tend to enter the classroom with some greater acceptance of the authority of the teacher and the school than may the equivalent American students. This acceptance of authority brings its own specific educational problems, which will tend to reveal themselves over the course of time, but the fact that students enter with this mind-set does make it easier for teachers *at the beginning*, which is really useful because beginnings are such important times.

A British teacher beginning an open classroom can make suggestions to students, or establish requirements which students will tend to accept and go along with, so that it is relatively easy to get at least an appearance of children working independently. The teacher may have a problem later on in helping such students to become truly independent and self-directed, but he or she does have a bit of lead time to work on that.

An American teacher, establishing an open classroom, may be working with students who seem to view suggestions or requirements as an infringement on their independence and who resist from the beginning. The teacher then has to face the problem of boundaries, requirements, and authority right at the start when he or she is least prepared and most uncertain of what he or she is trying to do in the classroom. This situation is made more difficult if the teacher is especially vulnerable to resistance or challenge from students. Among teachers (especially young teachers attracted to open education), there does seem to be a significant proportion who see open education as an approach which will allow them not to exert authority in the classroom. Thus when the students begin the inevitable process of testing the teacher, too often what is revealed is an adult who is uncertain of his or her own authority, reluctant to provide boundaries, to make demands of students, and to help students be less bound by their own immediate impulses.

If open education is to flourish in the United States it seems important that such broad and deep cultural differences be taken into account. This might include greater efforts to win initial

support from parents and community groups, and more preservice and in-service support for teachers so that they have a clearer understanding of how they are proposing to structure their classroom.

Within such broad differences between the cultures, there are also major differences in the cultures of the schools of the two nations. Lillian Weber, in making a cross-cultural comparison in her book *The English Infant Schools and Informal Education,* writes:

> By the time I returned to America it had become clear to me that the whole fabric, not just the pieces, of the entity I've described, English publicly maintained infant education, was different from the long-standing institutional forms on which American public school systems were built.[4]

Thus "the whole fabric" of the schools in which open education began and is developing is different from the fabric of the schools into which some educators are trying to introduce open education in America. Weber was particularly struck by the fact that in comparison with the English schools she saw, American school systems are standardized, top-down bureaucratic systems with little room for initiative on the part of principals, much less teachers. This tradition of autonomy for head teachers and teachers in England is important but in my view another critical element which combined with this atmosphere of autonomy to help produce open education is the size of schools.

I have worked with student teachers in an elementary school in New York City with two thousand students. In England a primary school of three hundred students is considered quite sizeable. In a small school a head teacher with autonomy can begin to create a particular tone or atmosphere in the school. The reduced amount of paperwork in a small and less bureaucratic system means he or she can work closely with the staff as an educational leader. He or she knows the names of all the children and knows each staff member very well.

The fact that the teachers have, by tradition, a high degree of autonomy means that, rather than issuing instructions, the head teacher works in a more collegial way to influence practice. The autonomy means that classrooms and schools can and do differ

[4] Lillian Weber. *The English Infant School and Informal Education.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1971.

widely, and it is important not to imagine that everything in British primary education is "open." The fact of relative autonomy for headmistresses and teachers means that there are schools with desks in neat lines, where children parrot responses in unison, and a mile down the road may be one of the schools which have become showpieces of open education.

Open education began in these small autonomous schools partly because, it seems to me, in them it is possible more easily to establish the relations among adults which allow and encourage the sort of learning that open education values. In a small school with a tradition of respect for the individuality of other teachers it is possible for adults to support, help, and learn from one another. If the adults are not supporting, helping, and learning in this way then I think it less likely that the children will feel able to learn and to help one another. In a small school a child is more likely to have the sense of security that comes from being part of a society where he or she knows everyone, is known by everyone, and has some sense of personal significance. This security can provide a safe place from which to undertake the risks involved in learning.

Size is an important factor but behind the issue of size lies an attitude of mind. The attitude responsible for the production of large elementary schools has been influenced more by ideas of efficiency taken over from the world of business than by educational ideas, and Weber sees such attitudes permeating the American educational culture. Standardization, systematization, and control through centralized curriculum are antipathetic to open education. One of the challenges facing advocates of open education in America is to find a modus vivendi between the prevailing culture of the schools and the assumptions and needs of a more open approach to learning.

Holistic Approach to Openness

All aspects of a culture are linked to the other parts, and another broad difference between the culture of British and American schools has connections with questions of size and efficiency and goes beyond them. What happens in British primary schools tends to be more holistic, or all of a piece, while in America things tend to be somewhat more segmented. Large American

elementary schools have special teachers in such areas as drama, science, art, music, and physical education while smaller systems use traveling teachers. In the United Kingdom such specialists, partly for reasons of economy, are rarer, and the individual classroom teacher takes on many of these areas as part of his or her regular teaching. The level of expertise involved in the teaching may suffer but, to compensate, there is the possibility of a much greater integration of learning. Visitors to open classrooms comment on the way learning seems to flow, with activity in math affecting children's painting, or their reading affecting their drama and movement. Such a flow is made more possible because the teacher has responsibility for working with all these areas and can be alert to useful connections. In this way an integration of cognitive, aesthetic, and affective concerns is made possible. By contrast a teacher attempting an open classroom in the United States may find this flow of learning harder to sustain. A colleague who is a subject area specialist may resent what seems like intrusion onto his or her "turf," materials may be unavailable to the classroom teacher because "paint is ordered only for the art teacher," his or her own training as a teacher may not make him or her feel confident in working with music, physics, art, math, botany, and much else besides. The free flow of learning which some American educators want to see happening in this country's open classrooms will only happen if the teachers are enabled to be more free and flowing themselves; free from too much external control, free to trust the capacity of children to learn, flowing in the sense of being able to go sometimes where the learning of the children seems to want to go rather than where the lesson plan and curriculum guide say it is supposed to go.

This holistic approach is deepened in Britain because the religious and civil domains are interwoven, rather than demarcated. Each morning the whole school comes together for an assembly which is part religious service and part community meeting and which can increase the sense of participation in a manageable human group with something in common. In British schools this morning assembly is augmented by a regular element of religious instruction, again generally done by the classroom teacher. At its worst this can be soul-deadening and at its best it allows a spiritually alive and sensitive teacher to blend spiritual and moral

concerns with the cognitive, affective, and aesthetic. The Constitution makes this spiritual and moral dimension difficult to approach in the United States, while, as to the whole community of a school meeting together, I sometimes wonder if this happens only when someone pulls a fire alarm!

I have suggested a number of differences between British and American culture in general, and the cultures of the school systems in particular, which go some way toward explaining the fact that attempts to introduce open education into the United States have encountered real difficulties. It is also worth remembering that the beginnings of open classrooms in Britain go back more than 30 years, and it has been and continues to be a slow and organic growth of an educational approach developed in and suited to a particular society. This does not mean that open education cannot take root in American soil. Introduced thoughtfully and slowly, with careful attention being paid to the particular needs of the situation and of the children, it can flourish.

A Living, Growing Process

Perhaps this point about attention to immediate circumstances and the needs of the particular group of children involved is the fundamental one. Many educators who have gone to the United Kingdom have tended to look at room arrangements, classroom practices, and specific materials and to copy these down for later introduction into their own classrooms. What they have looked at less, it seems to me, is the attitude which existed in the mind of the teacher who established such a classroom. How did he or she come to set the room up in this particular way? Almost certainly not simply by reading a book, attending a lecture, or observing another teacher, although some of these things may have played a part. The attitude which produces an open classroom begins with the children, their characteristics, their needs, and their learning. The teacher then asks, "What can I do to improve the quality of the learning?" He or she makes a change, perhaps a modification of another teacher's idea, or something quite his or her own, and then watches what happens. Does the learning improve? Does the idea need modifying, or should it be abandoned? The test for this is not whether the change brings the classroom nearer to some

idealized picture of what an open classroom *should* be like. The test is, do the children learn, do they increase their capacity to continue learning and enjoy their learning?

Open education is a name being applied to the approach of teachers in a group of schools who, in trying to improve the quality of learning, have come up with some broadly similar beliefs and practices. These are being shared and constantly refined. The process is a living, growing one. There is enthusiasm about it, and some opposition to it. The particular way these schools are going represents an attempt to maximize the learning of children within the context of the particular opportunities and constraints which the British educational and social system presents.

American educators can learn from the British experience, and vice versa, but the American context offers other opportunities, and other problems. If too much attention is focused on the other side of the Atlantic I am afraid that American teachers may miss their unique opportunities and fail to wrestle with their unique problems. Some of this explains why open education has been seen by some people to be failing in America. The temptation is to look at the technique and the trappings. The salvation may be to look at the children and ask how they can be helped to increase their capacity to learn. Then, what happens in more and more American classrooms may or may not be called open education, but it will be good education.

Opening Up and Making It Work: A Case Study

Bud Church

In September of 1971, three elementary school teachers in North Haven, Connecticut, started an alternative "open classroom" pilot project. I was one of them.

At the end of its third year the project underwent a thorough evaluation. Based on that evaluation, the administration recommended to the school board that the project be removed from its "pilot" status and be officially endorsed as an ongoing, regular program. The board so voted.

At least in those terms, the program is a "success." Although no two sets of circumstances are alike, it may be helpful to someone else to consider the process we went through to design, to implement, and especially to evaluate what we call the Integrated-Day or I-D Program.

We modeled the I-D Program after practices in certain British Primary Schools that have become well known in this country through the writings of such Americans as Joseph Featherstone, Charles Silberman, Vincent Rogers, Lillian Weber and others, as well as through the literature of many British educators. We have adopted nearly all of the assumptions about children and their learning implied in the practices of those British schools, and we have been working to adapt those practices to suit American conditions.

Many different kinds of practices, however, are called "open education." Recently I was on a panel discussing how individualized learning takes place in an open classroom. The speaker who preceded me took pains to assure the audience

that when he spoke of "open education" he certainly did *not* mean "British Primary." He went on to talk about putting children on individually guided tracks with daily pre-testing and post-testing to determine what instructional modules to plug into each child, or to decide if a child needed to be "recycled."

That is one approach to individualization, but it is a misnomer to call it an "open" approach. It leaves no room for the learner to make any significant determinations about his or her own learning and his or her own growth. It is founded on the assumption that schooling is almost always based on: a belief that a child is a passive and empty vessel and that learning is something somebody else does to the child. Such programs try to assemble a child's mind the way RCA assembles a TV set.

When my turn came to speak I assured the audience that what I meant by "open" education *was* "British Primary." Then I talked about some of the children in the I-D Program, their questions, explorations, decisions, projects, their mistakes and conflicts, their exuberance, their growth as learners and people.

This chapter, however, is not a description of children's activities, nor an account of how we try to run open classrooms modeled on British Primary school methods, nor an attempt to justify the philosophy behind our approach to open education. What this chapter focuses on is how one such program has survived successfully when it does not fit the notion of schooling most people hold. What follows is a presentation of events significant to our development. A crucial aspect of that development has been our struggle with evaluation, and that topic is given special attention.

This chapter, then, is more bones than flesh; it outlines those forces and structures relevant to our success, but suggests little of the joy and pain, the blood and guts, of living with it every day.

A Beginning in Openness

In 1969, after having taught high school English for ten years, I went to teach the fourth grade at an elementary school in North Haven. There I met several fine, experienced teachers, two of whom, Joyce Harrison and Beth Stott, later began the I-D Program with me.

The next year I took a sabbatical to study British Primary education under Vincent Rogers at the University of Connecticut. This included spending some time in well-established British Primary Schools in Oxfordshire, England, and visiting several open classroom projects in the New York, Connecticut, and Boston areas.

In January of that year I wrote a position paper called "The Integrated-Day Approach as a Possibility in North Haven." This paper was submitted to the superintendent with the understanding that he would distribute it to the members of the administrative council for consideration.

The paper had two sections. One section discussed the assumptions underlying the integrated-day approach to learning. The other suggested a design for implementing a program based on those assumptions, including such practical considerations as staffing, the role of the teacher, room arrangement, the principle that the way space is used is more important than time, the integration of basic skills with other learning experiences, record keeping, selection of children, and the role of parents.

The section dealing with these underlying assumptions was later condensed to one page. This one-page statement of the 13 assumptions has served as the central document behind each step of the I-D Program's evolution, so it is worth stating in its entirety:

ASSUMPTIONS UNDERLYING THE I-D PROGRAM

1. Erik Erikson calls the stage from about 5-12 the age of industry. The child learns best when he is active, moving, communicating, sharing, tinkering, putting things together, taking things apart, manipulating concrete materials; in short, using all his senses in activities that are real to him. To squelch this is to run the risk of what Erikson calls "Inferiority."

2. As an active learner, the child is the principal agent in his own development. He is innately curious about the world and initiates activity to explore and learn about it.

3. Learning is something a child does; it is not something done to him.

4. Each child is unique in the way he learns.

5. The best learning starts from the child's experiences and interests.

6. Over a period of time every child should learn important skills

and principles, such as the three R's. These are the tools of the culture. Most children come to school wanting to learn these.

7. To a child, reality is a whole, a unity, not divided into separate subject areas and isolated skills.

8. Play is a child's work. When a child initiates activity in which he gets involved—and all children do—he is playing and working.

9. A school, a classroom, should be a rich learning environment deliberately designed with much to explore, to wonder about, and to get active with. It should extend into the community and relate to the home. The teacher's role is to assess and guide the learning toward long-range objectives he has clearly in mind.

10. Aesthetics are the heart of a child's world. As Silberman says, "poetry, music, painting, dance, and the other arts are not frills to be indulged in if time is left over from the real business of education; they *are* the real business of education." [1]

11. Assessment of a child's efforts and growth should be made on the basis of his individual learning. How one child compares with another is irrelevant to a teacher's work. What is important is that each child shall have opportunities to employ his own powers in activities that have meaning. Mistakes are not failures. Evaluations must not be turned into judgments.

12. Children need to learn to live together. They need the chance to experiment socially as well as intellectually. They need adults who are dedicated to helping them work through the solutions of their interpersonal and personal problems as well as their academic ones.

13. Childhood is a stage of life in itself, to be enjoyed and savored; it is not simply something to be passed through on the way to adulthood.

After the administrators had had time to read the position paper, the superintendent arranged for me to meet with the administrative council. My goal was to get one of the seven elementary school principals to consider the idea of starting an alternative integrated-day pilot project for grades 1-3 in his or her school. After three hours of discussion, no one offered to take it on.

That could easily have been the end of the whole idea except that the superintendent made a key decision: he announced that if I went to the Curriculum Steering Committee and to the school board and received their approval, he would decide which school to put the pilot project in.

[1] Charles E. Silberman. *Crisis in the Classroom.* New York: Random House, Inc., 1970. p. 8.

With that in mind Joyce and Beth began to work with me more closely. We met with the Curriculum Steering Committee in February. This committee, made up of representative teachers and administrators from each of the schools in the district, has the power to vote for or against new programs. Once they were assured that no teacher would be forced to teach in such a program and that parents would volunteer for it so that no child would be forced to be in it, they gave their approval.

In order to give the proposal a full hearing, the superintendent arranged a special meeting with the school board in March. Board members had been given literature on open education to read. Vincent Rogers attended the meeting as a consultant. After a couple of hours of discussion, during which the superintendent voiced his support of the program, the school board voted unanimous approval of a pilot project. The board specified one condition: the pilot project could not cost any more than a regular program. We agreed. We did not want to run the risk of having the program criticized on the grounds that it cost more than the conventional program.

In turn we stipulated three conditions that the board agreed to:

1. The I-D Program would begin with grades 1-3, and it would expand a grade upward each year so that the children would continue in this type of a program as long as their parents wanted it.

2. No "hard" evaluation would be made for three years, although a yearly assessment of the program's progress would be submitted to the board.

3. If after three years the program proved to be successful, it would be officially endorsed as an ongoing alternative program with vertical expansion a grade a year right up through high school so that ultimately there would be a K-12 alternative school for those parents who wanted it.

Soon after the meeting with the school board, the superintendent selected the Ridge Road Elementary School as the location for the pilot project. For some time a small group of vocal parents from the Ridge Road District had been after the school to be more flexible. The principal had tried to satisfy these parents with small

changes in the school's program; he was concerned that any major change might do more harm than good. Once the decision was made, however, he expressed his willingness to help in any way he could.

With the principal's help we set up a meeting in April for all Ridge Road parents who would have children in grades 1, 2, or 3 the following September. Nearly three hundred people turned out. The principal introduced me. I showed slides of British schools and referred to the list of 13 assumptions which had been sent to the parents. Then Joyce spoke about the learning of writing and reading from a language experience approach, and Beth talked about the learning of math from a manipulative, experiential approach.

We tried hard not to sound as if we were criticizing the conventional program. Our approach was not better or worse, simply different, with a view of child development and of how children learn that is different from that of the conventional instructional program. Our position was that parents have a right to a choice, based on their own value systems, about what is worthwhile for their children.

Nonetheless, the parents pressed us for "hard data," for test results and research statistics, to prove that our way was better. We had anticipated some of this, but we had not realized how much anxiety, even hostility, could be aroused. Our answers, of course, did not satisfy anyone looking for quantifiable certainties. Indeed, we are suspicious of the numbers game in all its manifestations and said so, which helped to clear the air. Quantifiable research has its place, but perhaps much less in education than educationists (especially in academia) have been forced to accept in order to appear respectable in an age that worships technology.

On the other hand, we suspect that many parents didn't care at all about "hard data" but simply wanted to size up the three teachers. These parents trusted more their subjective intuitions than they did any figures. Perhaps they know that there is not much reliable research to support anything in education.

In any case we did satisfy enough parents so that 50 children were signed up for the program that night. Parents of another 75 children expressed interest but wanted more time to think it over.

To begin the program we needed approximately 75 children, ideally 25 at each of the three grade levels. Accordingly, we held another meeting in May just for those 75 parents who were on the fence. We ran the meeting informally, simply answering questions, most of which were about reading. At the end of the evening, 25 more children were signed up. We now had our 75, and happily the total broke down to about 25 at each grade level.

First Year

It took most of the summer for the three of us to set up our rooms. We made a point of getting to know the parents, and many helped to set up the rooms. We decided not to do complete vertical grouping: Beth and I would have classes of first and second graders mixed, but Joyce would take all of the third graders. Although our three rooms were adjacent to each other at one end of a corridor and we planned on the children being able to move quite freely from one room to another, we were not team teaching in the usual sense of that term. Each of us would have a self-contained class and 25 children we were totally responsible for. In other words, we were not going "open space," a concept more in keeping with individualized instruction than with individualized learning.

To try to capture the exhaustion and the exhilaration of that first year would require a book and is not the purpose of this chapter. The following points, however, highlight some of the significant organizational and political developments during the year:

—The principal became actively supportive of the I-D Program, taking the position that both open and conventional approaches are viable ways to educate children. This helped to alleviate tensions between the two staffs.

—The I-D Program was instrumental in getting the school board to develop a policy letting parents drive small groups of children on "experience trips" without the teacher.

—There were too many visitors the first year, almost four hundred! We developed a Visitor's Guide and a regular procedure for visitors.

—We developed close contacts with the parents, using them in the class, calling them at night, being available at any time for

them to talk to, and setting up evening adult classes on everything from Piaget's theories to making games.

—We had close ties with the University of Connecticut; for example, each of us had a student teacher through most of the year.

In addition to the many meetings and telephone calls with parents, twice a year we followed the policy of the school system and held a formal conference with each child's parents, once in November and again in April. At these conferences we concentrated on showing parents the actual work their children were doing in all areas: books the children had made or written, the books they were currently reading, phonics games they were playing, math materials they were using, art work they had done (much of which would be displayed in the room or in the corridors), or projects they were pursuing. The emphasis was on presenting the actual activity of each child to his or her parents without applying any secondary standard of a grade or a comparative norm. We would discuss how the child was progressing compared to how we felt she or he might progress, but never in comparison to how other children were progressing (see assumption 11). In January and again in June we wrote a detailed evaluation for each child and sent it to the parents in lieu of the standard report card.

To assess the first year we devised the following three-part procedure:

1. In order to determine the extent to which we were operating the I-D Program consistent with our philosophy, we put the 13 assumptions into the form of a rating scale. Then we asked eight observers, four administrators from within the system and four college or state level people from outside the system, each to spend a day in the program. The task of each was to judge on a continuum from "strongly agree" to "strongly disagree" the extent to which the program was practicing its assumptions. All of the observers agreed that the program was attempting to meet all of the assumptions to a significant degree.

2. In order to get feedback from the parents we asked them to respond in writing to five questions regarding (a) their child's attitudes toward school and learning; (b) their child's feelings about himself or herself; (c) what relationship the child was making

between school and home; (d) their reactions to their child's progress in skills in the three R's; and (e) their feelings about their child's attitudes toward reading, writing, and math. Over 80 percent of the questionnaires were returned. Only a small fraction of the answers was negative in any way. The parents were supportive and apparently pleased.

3. We gave each child about two dozen standard skill sheets in reading and math at about the level we anticipated each child to be to see if the "level" we assumed he was at in conventional terms was about right. In every case the child knew the skills we knew he would know, and did not know the ones we knew he would not know.

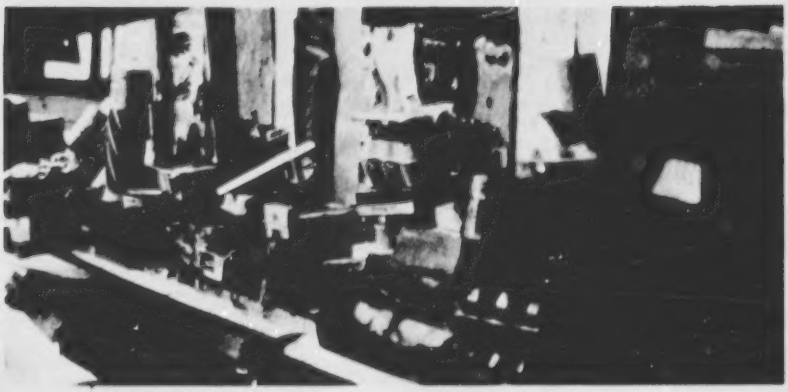
The principal, impressed with the results after only a year, put together a 34-page packet for the central office and for each school board member summarizing in detail the procedures and the results of the three-part assessment.

In the spring we invited kindergarten parents to a meeting because we were only seeking children for the first grade for the next year. The format was the same as the year before except that instead of showing slides of British schools, we had slides of our program. More important, the parents were able to visit the I-D classrooms. The equivalent of one class of first graders were enrolled, precisely what we had hoped for.

Second Year

For the second year we planned on two first-second grade classes and two third-fourth grade classes. (In keeping with the nongraded approach we are actually practicing, we have tried to get away from referring to grade levels but have been unable to do so.) Beth decided to take a leave of absence to visit open classrooms elsewhere, especially in North Dakota. Because teachers work so closely together in the program, Joyce and I were allowed to become actively involved in the hiring process.

The second year there was less pressure from outside to prove ourselves, but there was a greater desire within us to move from a makeshift operation to doing it right. While we still believed that an open program should ultimately operate at no more cost than



Using junk imaginatively is desirable in an open program, but we became impatient with so much makeshift material.

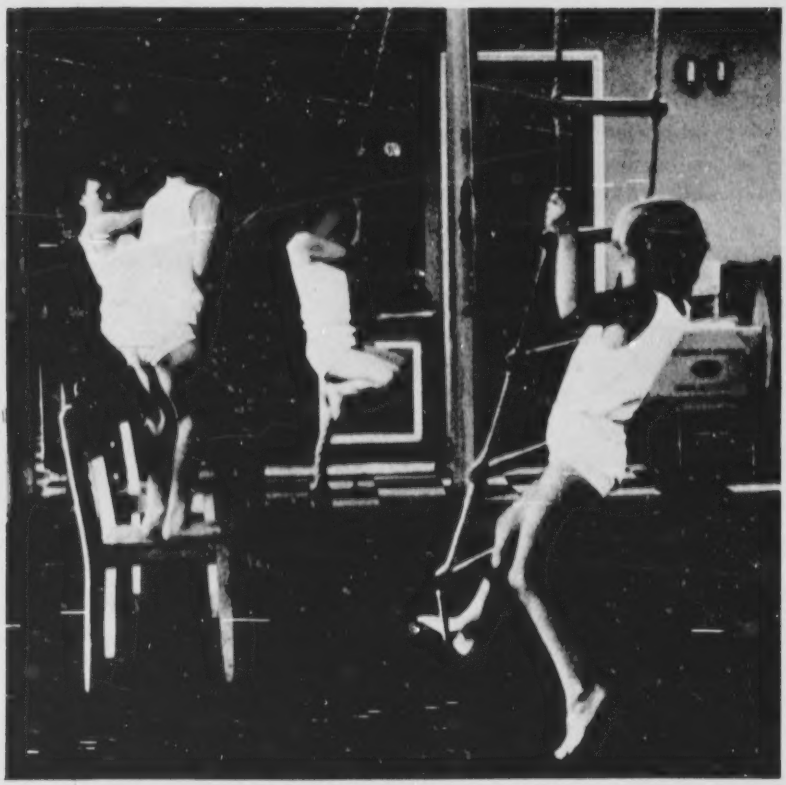
a regular program and perhaps cost even less, there is an initial outlay that is desirable to put together a decent open-learning environment, from significantly different kinds of furniture and architectural arrangements, to decent animal cages and sets of tools for working clay. We had assumed that because we would not be using class sets of basal readers, workbooks, and subject texts, that that money would be available for other uses. It became clear that not enough is made available that way to start a program. (We did get a few hundred dollars of leftover Title III money without which we would have been in real trouble; it bought enough manipulative math equipment and art supplies to get by.)

We also needed a "kitty" that we could draw from for spur-of-the-moment purchases. We learned that is not legal in Connecticut, so we developed our own kitty putting in money from talks and workshops and our honorariums for training student teacners. Like most conscientious teachers in any program, we spent hundreds of additional dollars out of our own pockets.

The first year we made do by scrounging wherever we could: cellars, attics, garages, tag sales, dumps, warehouses, begging at stores. Being resourceful and using junk imaginatively is desirable in an open program; too much of the slick and commercial is not in keeping with an open philosophy. Yet there is a limit, and the limit is reached when the environment looks and feels dilapidated, cluttered, a collection of stuff that everybody else has thrown away.

Then it gets in the way of the order and the aesthetic quality that is needed for children to feel good and learn beautifully. That second year we developed higher standards for what a learning environment should be and became impatient with so much makeshift material.

Although we had no choice but to operate in a makeshift way, ironically we came under attack for it: we were told by the fire marshal to get rid of the rugs we had scrounged; the health inspector told us not to use the wooden animal cages we had built; we were warned that dressup clothes from home might carry diseases; fire and safety regulations kept us from using the hallways as we wanted to; we were told not to let the children go barefoot in the gymnasium. There was one hassle after another related in



We were told not to let the children go barefoot in the gymnasium.

part to the makeshift quality of how we had to operate and in part to a school mentality obsessed with the cautious and antiseptic life. During the second year some of the only humor we had outside of our work with the children came when we would chuckle over our attempts to create more relaxed and humane learning experiences for children while we were almost killing ourselves to do it!

On top of all this the central office made the decision to give standardized tests to every grade throughout the system in a show of "accountability." Throughout the year we had been in a dialogue with the administration about what made sense from an I-D point of view regarding testing and evaluation. This culminated in a position paper I wrote called "The Mystique of Standardized Testing." It drew on material from the NEA, from a Rand Corporation study, from Lillian Weber and Deborah Meier in New York, and from Ed Dyer and Ted Chittenden at Educational Testing Service, among others. After several meetings, the central office decided to test only grades 3, 6, and 9. Because we felt we had some influence on that decision, we compromised and agreed to have our third graders tested with the rest. So far as we know nothing was ever done with the test results.

We also spent a good deal of time the second year putting together a position paper justifying the inclusion of kindergarten in the I-D Program. The administration agreed to this so the subscription meeting for the next year included parents of pre-kindergarten as well as kindergarten children.

There was less pressure for a formal assessment the second year than there had been the first year. The central office had designed a rating scale with the awkward but accurate title of "A Parent's Perception of Fundamental Beliefs of Education in the Elementary Schools of North Haven." It was to be given to a random selection of parents throughout the system. On it were 16 questions ranging from "To what extent does your child's school—its total experience and environment—exert a positive influence on his well-being?" to a variety of questions on the development of skills, the promotion of individual interests, the minimizing of tension and fear, the fostering of good human relations, and so on. The questionnaire was so compatible with the 13 I-D assumptions that we decided to use it with all of our parents.

The I-D Program came out looking good on the questionnaire. This wasn't surprising since parents volunteered for the program. But the results did do two things: first they indicated that with our parent population we were accomplishing not only our own goals but also the official goals of the system; and second the results were an endorsement of the program on the same basis that was being applied to the rest of the system. The school board accepted the results of the questionnaire as the second year's assessment.

Third Year

Going into the third year it looked as if we would have a solid staff of five veteran teachers, including Beth who planned to return and take one of the K-2 classes. Then I got an offer from Dartmouth College to become Director of Elementary Education. Although torn by doubts, I took it. I was abandoning in its crucial third year a program I had been instrumental in starting.

All the frustrations of the second year were put aside under the weight of the third-year evaluation to determine the future of the program. I kept in touch with the principal and with the staff and felt both pleased by how it was being handled and empty at not being part of it.

The decisive third-year evaluation had four parts:

1. By far the most important part was a Pupil's Attitude Inventory. Above all else the I-D staff wanted to know how the children in the program perceived their experience. This was more important than testimony from outside observers, inside observers, or even parents.

The Inventory, essentially a technique for interviewing children, was developed in Chicago in 1970-71 by the research staff of a Follow-Through Project directed by Dan Scheinfeld. It was refined by Nancy Miller and others at the Center for Teaching and Learning at the University of North Dakota. The interview questionnaire, called "And What Do You Think?" revolves around 20 key questions asked of the children. According to Nancy Miller;

> The interview attempts to learn whether the child perceives the environment as containing a variety of options; if the child is able to act upon what he or she wants to do (a project or something he or she wants

to learn more about) and if not—why not; if the child sees the materials and the people in the room as resources helpful to or hindering his or her movement and goals; whether the child perceives himself or herself as an influencing agent able to bring about change; and the child's general feelings about the classroom and whether the child is able to express and act upon those feelings. The children's responses will also help in understanding the characteristics and the extent of the structure of the room and the relationship between this structure and the children's movement.[2]

The actual interviewing of 11 girls and 11 boys, evenly distributed from throughout the grades and selected at random, was conducted by two outsiders knowledgeable about the I-D Program but not directly connected with it. Tape recordings were made of the interviews. The I-D staff listened to the more than 36 hours of tapes and recorded the responses of the children. From these recorded responses 17 generalizations were derived regarding the attitudes of the children toward their experiences in the I-D Program. A highly positive correlation was established between the 17 generalizations and the 13 assumptions that underlie the I-D Program.

2. The system-wide parent questionnaire used in the second year was given again to all I-D parents. This time the responses to the 16 questions were more systematically analyzed. The high positive feedback from parents continued.

3. A detailed descriptive summary was made of the recording and reporting procedures used by the I-D teachers; these have already been discussed above in some detail under the summary of the first year. It is important to emphasize that each I-D teacher developed his own procedure for each of the following: (a) keeping track of skills in math, reading, language, and inquiry usually by way of some system of individual skill cards; (b) keeping actual work of a child where possible especially in art, in written work, with projects, etc.; (c) keeping anecdotal records of a child's emotional, social, and attitudinal growth; and (d) using the above records to report formally to parents four times a year, and informally many times.

[2] Nancy Miller. "History and Development of the Children's Interview." Unpublished paper. Grand Forks: University of North Dakota, June 1973.

4. Flow charts of children's actual activities over a period of time were developed from anecdotal records to show the flow and integration of learning experiences.

All of the materials related to the four parts of the evaluation were put together into a 36-page report, and a copy of the report was given to each school board member. A special school board meeting was held to review the report and to determine the future of the program. At the meeting, each I-D staff member made an oral presentation related to one of the above parts. The report also included an introduction summarizing the history and philosophy of the I-D Program, as well as the following recommendations which were presented by the school principal:

1. The "pilot" status be dropped and the I-D Program be endorsed as an ongoing alternative expanding a grade a year until it is a full K-12 program.

2. The I-D staff members continue to have a major say in the recruitment of personnel to the program.

3. The I-D staff be allocated that proportion of the Ridge Road School budget equivalent to its percentage of the student population with authority to determine how it is spent.

4. A full-time paid teacher aide be assigned to the I-D Program.

All four recommendations were approved. At least in terms of formal procedures, then, we had been officially deemed a success.

I say "we" because that is how I felt as I kept in close touch with the above proceedings throughout the year. The feeling became so strong that in the spring I resigned from Dartmouth to return to where, for me, the action is. I didn't feel that what I was doing at Dartmouth matched in significance the pioneering that is going on in the I-D Program in North Haven.

In some ways, however, the pioneering is just beginning. The next step for the program is its transition to the junior high level. The junior high in North Haven includes grades 7 and 8 and is fed by all of the elementary schools. Expanding a program based on I-D assumptions to that level with children who have been in such a program for several years is breaking new ground. The

foundation has been laid at the Ridge Road School, but not without problems that will continue to plague us. Nonetheless there is a sense of satisfaction and of hope that makes it all worthwhile.

Significant Factors

In closing, two questions deserve attention. One is: What contributed to the success of the I-D Program? Several factors seem significant:

1. Experienced teachers who had been with the system for some time in one capacity or another and had gained a certain credibility initiated the program. On the one hand this meant that even those who disagreed with them acknowledged their credibility as educators; on the other hand it meant they knew the system, how to work through channels, how to keep key people informed. They weren't innocent.

2. The teachers took active leadership in the program. Most importantly this meant that they anticipated needs so that they were on top of key issues such as evaluation, recruitment of children and staff, communications with parents, or expansion to the junior high.

3. It can't be overemphasized how important it was during that first year for the three teachers to have each other for support during all the moments of doubt and frustration.

4. The program was evaluated on the program's terms, not on conventional terms such as standardized test scores. The program sought ways to be accountable for all the goals it said it would be accountable for. These included the three R's, but not as isolated skills measured against a norm. The overall learning behaviors and learner attitudes of individual learners were what mattered. Standardized tests not only do not measure these but actually subvert such concerns because what they do measure is given such outlandish importance. We are convinced that there is considerable evidence that the single-minded push for docile and uniform test passers at 6, 7, and 8 contributes significantly to so many nonreaders and "reluctant learners" at 16, 17, and 18.

5. The teachers were given three years to work through the program before being evaluated. If anything, that is a minimal

amount of time, just a beginning. But given the mentality of instant results that accompanies most new programs in American schools, it was a generous amount of time.

3. Even in moments of their own doubts and ambivalence, the parents remained supportive and helpful. We are convinced that parents need to be brought into the process of their children's education even more.

7. Some key people, notably the superintendent and the principal, were responsive. In spite of the frustrations and problems, especially during the second year, we never lost touch with the administration. Even in some of the darker moments there was the understanding that we all were working for what was best for the children.

8. The program was voluntary. Some may see that as the most important factor to its success, and it cannot be denied that being an identified "alternative" gave the teachers the freedom to operate more on their own terms. The heart of an open education program, however, is the consideration given to each child as an individual and making whatever arrangements necessary to contribute to his ultimate development as a person and a learner. An alternative program might make that easier, but I am not convinced it is necessary. The irony is that we have to develop an alternative program to try to accomplish what should be at the center of every program.

Asking what factors contributed to the success of the I-D Program begs the second question: Is the I-D Program really a success? Survival and expansion are not enough. The real criterion of success is the extent to which it makes a qualitative difference in the lives of the children who come through it.

The ultimate goal of open education is something akin to mental health. Mental health is being awake to life; it is feeling excited about living and learning; it is related to joy and celebration; it is being in touch with one's unique personal and intellectual powers; it is feeling control over one's own destiny. Mental health is perceiving school as an institution that promotes that kind of growth rather than fostering the sense of anxiety and failure and alienation and boredom and purposelessness and docility that has

been shown by an endless parade of critics to be the real lesson most children learn in school even when they do well on the standardized tests. Mental health is the only success for which we ultimately want to be held accountable.

In that regard we have taken accountability seriously, stating our assumptions, deriving objectives from them, setting up practices consistent with them, struggling to make them work, and evaluating ourselves accordingly. We wish all programs, all teachers, would be as rigorous, no matter what their pedagogy. It is too bad that the "accountability" movement is so narrowly conceived, usually deteriorating into trying to find out whether skills and information are being pumped in or not according to a grade-level, assembly-line timetable—an industrial rather than an educational accounting (which of course is where the term came from!). Schools that behave like factories—even factories with individually guided assembly lines—could in the long run, ironically, be sacrificing children's deeper development and potential for the gratification of immediate scores!

All schools, however, claim to have broader goals than that; they want to promote positive attitudes about learning along with all those skills and all that information. Maybe the burden, then, should be on all programs to be as accountable for those broader goals as they try to be for skill and information goals. Maybe the burden should be on school boards and administrations to broaden the notion of accountability so that teachers are not forced to play the "skills game" at the expense of other dimensions of human development.

In the I-D Program we used some evaluative instruments of a kind that we recommend to all programs if they are serious about being accountable for and evaluating all of their goals. Hopefully, more such instruments will be coming out in the future. We need to experiment much more in these directions.

That may turn out to be a major contribution of open education—keeping the schools honest. Only so can they move away from the practice of separating narrow skill development from broader human development and consequently become accountable for all the goals they give lip service to. For anything less than this, they may ultimately have to face the charge of malpractice.

Open With Care: A Case Study*

Roland S. Barth

Several years ago I accepted a position as instructional coordinator of two inner-city elementary schools involved in a new foundation-university-public school project. Six teachers were hired who shared a mutual commitment to open education. They all entered the project aware of being young, white, inexperienced, liberal, and from "out of town," moving into a world of older, predominantly black, conservative, and cautious adults. Nevertheless, they were buoyed by support for their ideas, by opportunities for staff development, and by what looked like an opportunity to put ideas into practice in an urban, public school setting. They dared believe radically different things about children, learning, and knowledge, and were prepared to act on these beliefs.

September

The first week of school, the classroom of one of the teachers, not unlike those of the other five:

Desks arranged in clusters of four or five, no names on desks, children choose where to sit.

Cardboard furniture, tables, boxes, shelves (all made by the teacher) arranged into interest areas at which children are engaged in a variety of activities with a good deal of excitement and noise:

* This chapter is adapted with the assistance of Beth Barth from: Roland S. Barth. *Open Education and the American School.* New York: Schocken Books, 1974.

Rooms are arranged into interest areas at which children are engaged in a variety of activities: painting, leather work, looking at picture books, making things out of yarn, making things out of clay, watching and handling rabbits and gerbils, watching fish in the aquarium.

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Teacher's desk placed at the back of the room, teacher moving from activity to activity and from child to child, offering encouragement, but also keeping children under control.

Teacher is smiling, kind, soft-spoken, trusting.

Children leave the room freely to go to the bathroom or to the water fountain whenever they choose.

At times the teacher organizes more directed activities such as math games, blocks, puzzles, etc. or reading periods on an individual basis, using mostly library books, few texts.

Little or no homework given, unless a child chooses to take home unfinished work or a book of interest.

A variety of interesting things available to children who are finished.

December

Three months later, the same classroom, again not unlike those of the other teachers:

Desks arranged in four rows with six to a row. Each child is assigned to and sitting at a desk with his name on it.

Most of cardboard furniture gone.

No animals.

No evidence of leather, yarn, paints, clay.

Teacher's desk dominates the front of the room from which a vast number of dittoed sheets are dispensed.

Teacher does not smile, rather directs and reprimands children, often yells at them in what appears to be almost continuous anger.

Bathroom pass required to go to the lavatory.

Teacher's permission required to go to the water fountain.

Children divided into ability groups for math, working silently in their seats on worksheets, workbooks, and textbooks.

Children divided into three reading groups, each of which uses a different level basal text.

Homework assigned each night in math and reading.

What had happened? The changes which took place in these classrooms over three months were major, and, from the point of view of open education, regressive. The dramatic turnabout involved all parties to the educational enterprise: children, parents, teachers, administrators, and the plan of the program itself. Let us examine the major sources and forms of resistance to change in the direction of openness.

The Program

The Lincoln-Attucks School Program was set up to serve six hundred mostly black students in two inner-city elementary schools. It was the first major attempt to combine private foundation support with resources of the university to augment the usual offerings of the public school system. The foundation would provide $100,000 to the schools each year for five years and a lump sum of $500,000 to the university; the public schools would provide the services and funds customarily available to elementary schools, plus about $180,000 in Title I funds the first year; the university would use the $500,000 from the foundation to recruit and pay for several additions to its staff to work in the program.

Two adjacent elementary schools were selected: Lincoln and Attucks. Underlying the remarkable concentration of resources upon these two schools was a major assumption: because the problems of inner-city children are great, the resources necessary to solve them must be of similar magnitude.

> No good purpose is served if projects are spread so thinly over so many educationally deprived children that there is no possibility of significant and permanent advantage to any. The guidelines call for a massive effort concentrated on fewer children, thus improving chances of achieving substantial gains.

A great deal was riding on the program. The foundation wanted to place its resources in a critical situation, where the likelihood of success was great and the prospect for dissemination high. The university needed to relieve growing, often hostile, pressures from students and community by becoming significantly involved in problems of the inner city. The school system wanted to regain the support of the black community.

In addition to these largely unstated goals were the formal objectives of the program:

> To increase our understanding of the respective roles—and their interaction—of school, home, and community in individual child development and learning
>
> To permit parents, teachers, and administrators to evolve better patterns of education
>
> To enrich curriculum and provide the special services necessary for quality education for all children

To develop instructional programs and practices flexible enough to strengthen the assets and remedy the needs of a diverse range of pupils

To improve the relationship between the pupils and their teachers, parents, and community

To improve the students' self-respect, identity, and self-confidence

To improve the basic skills of the students

To develop patterns of shared responsibility and decision making among the parents, the staff, and the students.

These were legitimate ends. However, no one mentioned *means*, the operational specifications to be employed in achieving the goals.

. . . no one fully understood the problems of providing quality education in city schools. . . . Thus it was decided (at the outset) that no specific intervention or method would be introduced during an introductory period. It was felt that it would take about a year of observation and appraisal before a clear cut indication of program direction would be apparent.

In short, unknown to most, the plan was to study the problems thoroughly before determining *how* to rectify them. This absence of a pedagogical plan led to crippling problems, three of which caused most of the difficulties: selection of inappropriate schools, haphazard choice of staff, and lack of administrative organization and leadership.

The Schools

It is not at all clear why *two* schools were selected for the program. Lincoln School was constructed in 1928, and for many years it served an Italian neighborhood with a K-6 parochial-public education program. With the loss of its middle-class population, Lincoln became black and lower class—a dumping ground for old teachers, inexperienced teachers, and misfits who could not be fired. These conditions created a volatile situation. Objections of militant parents were reaching threatening proportions. Because the foundation-university-public school program seemed to offer the resources necessary for rapid, significant change, Lincoln was chosen.

Parents responded with suspicion. They were told that they

must be included in the program, that the decision had already been made "downtown." Only two of the twelve teachers from the previous year were invited to stay on in the new program. An able black woman, one of the few teachers in whom parents had confidence, applied for the position of instructional coordinator for the two schools and was turned down in favor of the author. No one from Lincoln was placed in a position of major responsibility in the new program.

Attucks was a new K-4 school in a middle-class community. It was selected for inclusion in the program because it was only a mile from Lincoln; its new building offered a fresh start unencumbered by traditional people and practices; it was small, but it had the second highest concentration of blacks in the city—96 percent.

Unlike the Lincoln parents, those at Attucks jumped at the chance to participate in the program. In early May five teachers from the previous year's staff who wanted to join the new program were hired, and in June their principal was offered the position of administrative coordinator of both schools.

The contrast between Lincoln and Attucks is marked. If the program had had a fixed rationale, the choice of schools might have been different. As it was, the choice of schools was directed by expediency and *then* a rhetoric was imposed: "The two schools, teachers, and parents will work together in every way, and cooperate fully as equal partners in the program."

The Staff

Nor did a rationale underlie selection of administrators and teachers. The director attempted to fill the stable with strong, able people, without regard for background, color, or sense of direction. Furthermore, each was led to believe that she or he would have an important place in the new program and would be able to do what he or she felt was in the best interests of the children, whatever the approach.

Sixty people were hired to serve the six hundred children in the two schools. Staff polarization was assured: young/old; black/white; those from out of town/those from the city; university/nonuniversity; experienced/inexperienced; administrators/teachers;

traditional educators/open educators; professionals/paraprofessionals; Lincoln/Attucks. These tensions were aggravated by the absence of a clear policy or educational philosophy, and the lack of clear job descriptions for each of the 25 nonteaching adults. A variety of firmly held, intrinsically contradictory educational beliefs were off and running.

Administrative Organization

The third major source of difficulty was the lack of administrative organization and leadership. One principal would be responsible for all administrative duties in *both* schools, and another for instructional matters. The planners believed that separating the administrative and instructional duties would make each principal more effective. Because whites held the positions of administrative and instructional coordinators, it was decided, for political reasons, that a black would be appointed in each school as a kind of "building leader," to handle the "day-to-day" decision making. It was not until decisions had to be made, until the program was called upon to act, that the viability of this organizational model was tested—and broke down.

On the first day of school everyone made decisions. At Lincoln the building leader made room assignments, the instructional coordinator made room assignments, the director made room assignments, and the teachers decided among themselves what their room assignments would be. The administrative coordinator, the instructional coordinator, the curriculum resource teacher, and the director all tried to get supplies from downtown. One teacher in distress with her class had 11 administrators descend on her the first day to "help."

In this state of tension, insecurity, and exhaustion everyone quickly reverted to familiar alliances: university people met with university people; blacks met with blacks; whites met with whites; and the six teachers who shared a commitment to open education and who had been trying to dissolve themselves as a unit, regrouped. The tentative trust between individuals of diverse backgrounds gave way to suspicion and antagonism.

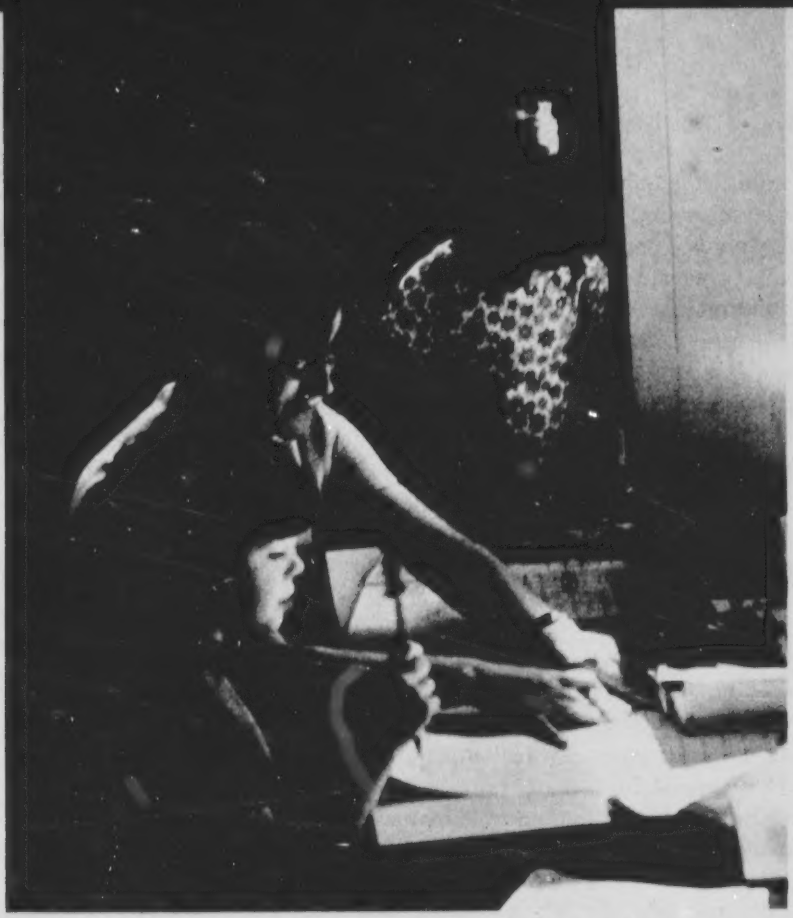
The long-awaited improvement in services for children was in jeopardy and as the situation grew worse, the likelihood of

intervention from the press, the university, the foundation, the superintendent, parents, and militant black groups increased. The director and the head of the university team, fearing a public debacle, assumed responsibility, announcing that henceforth they were "codirectors" of the program. But, because they did not know *where* they were going, the new codirectors could only attempt to minimize dissonance as it arose. This was a defensive and dependent orientation, hardly capable of conveying confidence, let alone anticipating subsequent problems. If dissonance was minimized it was due more to collective exhaustion than to any successful administrative strategies.

It was in this setting that the six teachers attempted to set up open classrooms. Despite their sensitivity to the perils of the program they instinctively displayed well-established but inappropriate modes of operating when the going got rough. One of the most important concepts was color blindness. They had been taught that skin color is only pigment and that there are no real differences between black and white people. Furthermore, to differentiate is to discriminate. The open educators believed that what was best for white children was also best for black children. The nature of children, the learning process, and knowledge is the same for all. They believed that education is experience encountered, not knowledge transmitted, and that an experience curriculum is as appropriate for black "deprived" children as for white suburban children. So the six chose to establish open classrooms at Lincoln and Attucks.

Resistance to Open Education from Children

Open educators assume that children learn by exploring a variety of materials, by making choices, and by posing and solving their own problems. They also assume that children welcome opportunities to do these things. The children in the program did not. The efforts of the six teachers were unsuccessful from the beginning. Following theory and intuition, they allowed children to make decisions. But children have limited capacity to attend to a task and attention becomes even more difficult when many options are available. In this case a rich environment of manipulative materials only made it less likely that a child could focus on any one.



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A common pattern emerged. A teacher would introduce choice into a classroom situation. The children would use the situation to disrupt the classroom. The teacher would withdraw the choice, often punishing the children as well. Everyone would then feel frustrated and resentful. Teachers learned an important lesson quite contrary to open educators' assumptions about children: trust in children's capacity to make choices is not warranted and will be abused.

Why did this happen? The answer lies in at least two places: the needs of the children and the needs of the teachers. As these children saw school, only two conditions could exist: firm, authoritarian order *or* chaos. The children were afraid of different

experiences; the more different, the more they were afraid. It is not surprising, therefore, that they were merciless in their demands for teacher-imposed order; or that they remained dependent upon adult control for any productive, organized experience. The children wanted stability and evidence of concern in a familiar form. The open classrooms and their teachers provided neither.

Like the children, the six teachers had a polarized conception of school: either authoritarian rigidity or creative freedom. Unfortunately, the dichotomies of the children and the adults were in direct conflict. Teachers' practices intended to facilitate learning were perceived as chaotic by the students, who rejected them out of hand. This pushed the teachers more and more toward what the students would call order and the teachers would call tyranny. The teachers found this distressing. Most soon decided that the ideas and practices of open education would not work. They tried to revise their teaching along more traditional lines. They set up reading groups, introduced basal texts, and required homework. But after each attempt, the teacher would usually hate himself or herself and the administration, and feel hated by the children as well.

The teachers were firmly on the horns of a dilemma. They came to the conclusion that it would be best to "go straight" only to discover to their dismay that they could not. With no preparation for the traditional role which was being demanded of them, they were unable to assume the role of manager of children and transmitter of knowledge. One teacher observed, "What I need is a cram course in being a traditional teacher."

The difficulties these teachers experienced seem to have general significance. Open education attracts many who find the "facilitator-of-learning" mantle a comfortable one under which to hide. Many advocates of open education have not resolved their own authority problems, and are unwilling, if not incapable, of being authorities themselves. They identify with the children, and see themselves as colleagues in the war against the oppressive system. Many have turned to open education because they do not believe children should be "managed." Yet when teachers are reluctant to be directive, children perceive this as insecurity and not as caring. They exploit the teacher's conflict over assuming a directive role and react with anger, which forces the teacher to assume a role he fears and detests.

Because the teachers were so caught up in this conflict, they were unable to explore appropriate steps or developmental stages to lead children from dependence upon authoritarian adults toward assuming more responsibility for their own learning and behavior.

Resistance from Parents

Not surprisingly the parents, like their children, also had a model of quality education which resembled a military academy more than the open classroom. Parents expected, wanted, and demanded, clear evidence that each child was under the teacher's control at all times. The only alternative, as the parents saw it, was that the children were *out of control.* They believed that the ideal relationship between teacher and student was that of superordinate and subordinate. If the child will but respect and obey his teacher, he will learn.

Parents visiting the classrooms of the six teachers were astonished and angered by what they saw: children with their backs to the teacher, playing with animals, games, and each other; teachers called by their first names; a variety of activities going on simultaneously; movement, mess, and noise. The parents considered this disrespectful and a source of intense embarrassment. Only one thing infuriated them more than seeing their children behaving in these ways—seeing the teacher do nothing about it. ". . . one of the parents asked me if my room was some kind of psychological experiment. . . . did I believe that children could not function in a neat environment."

Some angry parents stormed into the principal's office and demanded to know, "Why can't this place *look* like a school?" "Where are the textbooks, reading groups, workbooks, worksheets, homework?" "Show me what the children are learning," they demanded. "If I want my child to go to a zoo, I'll take him to a zoo. He's in school to *learn.*"

Examined more deeply, few parents really objected to the animals, the crafts, the woodworking, or to the notion of a "rich manipulative environment." The parents and the teachers wanted the children to "catch up" academically with white children. Their disagreement was over *sequence.* The teachers believed a child must have experiences with materials *in order to* "catch up," that

manipulative experiences are a necessary precondition for the development of skills and abstract concepts. The parents, on the other hand, knew their children were several grade levels behind in most subjects; they saw games, toys, animals, blocks, and other manipulative materials as frivolous and appropriate only *after* children have "caught up" on skills, concepts, and disciplines, through drill and workbooks.

Perhaps provoked by what they found lacking in the teacher's professional behavior, parents began to focus on what they expected of the teachers' personal behavior. A teacher's dress should be modest, sober, supplying ample coverage. There was concern about where the staff lived. The six teachers, living Peace Corps-like beside the schools, made parents extremely anxious. "How can my child respect a teacher who lives in that shabby house?" It also upset the black teachers in the program, for whom it raised the uncomfortable question of why *they* were not living in the school community instead of in the white suburbs.

The differing expectations of teachers and parents about quality education placed the two groups on a collision course. Concerned parents wrote a letter requesting that a black principal be appointed; they applied pressure to move the teachers out of the neighborhood; they wrote petitions demanding the six teachers be fired. Withholding themselves, by not coming to meetings or conferences, was perhaps the most devastating tactic parents employed to weaken and undermine the personal security of the six teachers and to kill their attempts at innovation.

More than a concern for appearances, traditions, morality, and their own egos led parents to a military academy concept of quality education. Their reasoning had logic: "We want our children to go to high school, to college, to get a good, white-collar job, to have a home, a car, and raise a family. In short, we want them to do what *you* (whites) have done." "If our children have the kind of educational experience you had they too will make it." "But, since our children are starting with many strikes against them, since they are already behind in reading, writing and arithmetic, and self-control, they will have to have your educational experience only *more so*. More respect, more obedience, more authority, more homework, more books, more discipline."

Paradoxically, although parents did not like what was

happening to their children in school, they were reluctant to risk anything different. Their implicit mandate to the program was *to improve dramatically their children's education . . . without significantly changing anything.* Under such a mandate, the greater the deviation from traditional educational methods the more resistance could be expected.

Resistance to Open Education from Administrators

The six teachers had expected to participate in important school decisions, particularly those which directly concerned them. They assumed that administrators would make decisions about routines and schedules, whereas decisions concerning substantive issues, such as curriculum, report cards, discipline, homework, or rules, would be group decisions. In short, the six teachers expected to find a *democratic* decision-making model in the program, a model somehow consistent with ideas of open education.

What they found was a power vacuum caused by the lack of a clear plan and strong leadership. Seeking to fill the vacuum were a dozen power-seeking and frightened administrators. Each member of the administration and of the university team had a great deal, personally and professionally, riding on the program. For most this was the first position of significant responsibility, and, like all first experiences, it carried with it unreasonably high expectations and a good deal of insecurity. They felt that long years of personal experience, their superior knowledge of their own race (for the blacks), and their positions of responsibility in the program entitled them to make important judgments and to have those judgments respected and carried out by the rest of the staff, particularly by teachers. In short, the university and school administrators expected the same respect and obedience they had accorded their superiors for many years.

Confronted with demands for traditional practices by authoritarian administrators, the six teachers found themselves in a situation they had neither anticipated nor were ready to deal with. On the one hand, they felt they should be supportive, especially to the black administrators; on the other they brought a pronounced hostility and distrust of authority figures, parents, professors, or school administrators. Black authoritarians defied their

categorization system. What teachers saw to be incompetent behavior could not be called incompetent without black and white fearing such accusations were based upon color of skin, not performance.

Their first, and perhaps easiest, response was to make concessions of form. When "orderly" rooms were demanded, they arranged children's desks in straight rows, but changed them once or twice a day for skits, dances, or games. Miniskirts and loud ties were replaced by more conservative dress. "Play periods" or "free time" were changed to "activity period" or to "work period." The teachers, surprised and disappointed when these surface concessions were not sufficient, reverted to strategies which had enabled them to resolve difficult problems in the past: verbal facility, color blindness, honesty, efficiency, and emotional and physical withdrawal.

Unfortunately, color blindness in the white teachers was not a virtue. In a situation where credentials came to mean power, *not* to acknowledge a black's color was an aggressive act, intended to deprive the black of his credentials.

When an offensive decision—to give homework, for example—was made by an administrator the six teachers responded by preparing and delivering a well-reasoned, careful, persuasive, and logical argument against it. Unable to outmaneuver the teachers verbally, administrators had to pull rank in order to emerge from the confrontation without loss of face. In this way, teachers time and again won the arguments, but lost the battle.

When the teachers saw ways of making things operate more efficiently, they suggested them. But many administrators use *in*efficiency as an indirect, even unconscious, means of getting teachers to do what they want them to. As these teachers became more efficient and self-sufficient, they escaped this indirect administrative control. For example, teachers who wanted to buy animals for their classrooms were told that money was slow in coming from downtown, so they went out on their lunch hour to a nearby pet shop. When told school carpenters were too busy to build shelves in their classrooms, they bought their own materials and tools and made the furniture over the weekend. When told there was not enough time to organize parent meetings before vacation, teachers wrote individual letters to parents of all their children.

These initiatives were taken by administrators as indications that the teachers were out of their control—which they were.

As a last stand some teachers attempted to bypass administrators by going above their heads to possibly more sympathetic officials. One, frustrated by the unreceptive administration, appealed to the university, an act which caused further alienation.

The ultimate response of the open educators to the resistance of administrators was *withdrawal*. When, despite their best efforts, things did not go their way, many of the teachers considered leaving the program. One rationalized his decision to leave by saying that, "Blacks should staff and run their own schools. Black children will not come to value themselves and achieve a favorable self-image if they are taught by white teachers." Another planned to leave to teach in a system which would both permit and encourage open education; otherwise, he said, he would "never know what it is like." On the surface this willingness to leave the classroom, the program, teaching, was the ultimate in humility. But there is another side: offers or threats to pack up one's marbles and go home had always been a successful strategy for these bright, valuable young people. It tended to bring parents, teachers, or peers around to help them get their way. In the program an offer of withdrawal was also a convenient defense which permitted the individual not to have to come to grips with a second alternative, that of making concessions.

In Lincoln-Attucks, repeated offers of resignation did not elicit sympathy or influence the opposition. Such offers were met, at best, with "Why would you want to do that?" Resignation was seen as weakness by those who had endured far more difficulty for far longer periods of time. Even worse, a teacher's offer to resign was seen as a personal vote of no confidence. Some administrators saw it as a test of allegiance: if the teacher chose to leave he had no allegiance to the administrator; if he said, "Oh no, I couldn't leave *you*," then he passed the test.

The teachers were willing to work *with* administrators as colleagues, but not under their control. Administrators, on the other hand, threatened by the teachers, wanted them only in subordinate roles. Each of the teachers debated whether to act according to his or her philosophy, saving children from what he or she perceived

as oppression and boredom, or to assume a more traditional role which would salvage his or her relationships with parents and administrators. Here was the ultimate agony and conflict of the six: *wherein lay courage?* Did it lie in fighting for one's personal and professional ideas—open education—and for one's rights of academic freedom as a teacher, or in "going straight"—making the concessions to administrators and parents necessary for survival? Initially, most opted for the former. By the time they came around to the latter, it was too late.

Unfortunately, no one considered a third alternative: that "going straight" at first might ultimately be the most powerful way of fighting for one's ideals. By so doing, teachers might gain the confidence of parents and administrators and thus in time be able to help children assume greater responsibility for their own behavior.

It is difficult to sort out the factors which led to the failure of open education in this public school situation from the factors which led to the failure of the program itself. To what extent were these failures a function of a poorly planned and administered program? Of racial tensions? Of the slowness with which the school system bureaucracy responded to urgent requests? Of the unwillingness of the university team to respond to the requests of the school people, and their inability to help disturbed children as well as diagnose their disturbances? Of the inexperience of the six teachers? Of the problems of trying to implement open education *anywhere*?

The program was based on several assumptions. The basic one was that the unpleasant, and unproductive, educational experience of children in school can be rectified by the infusion of more money and more people. The tragedy of the program was that few of the additional people in the program were capable of perceiving or acting upon the hundreds of problems which children and teachers were having each day. Instead, each searched fruitlessly for a significant sphere of influence, power, and security.

The impact of the six teachers and of the ideas of open education can be seen in the reorganization of the program during its second year. The new staff was described by a teacher still with the program as ". . . on the whole, older, more experienced, with

more blacks, fewer men, narrower, more conservative educationally, more traditional in style and in attitudes toward change." Thus the attempts by the six teachers to establish open classrooms had the immediate effect of drawing the schools far closer to the military academy model than they had been before the program began.

The six teachers failed, in part, because of their inexperience, stubbornness, idealism, and even arrogance. But a part of the failure rests with those who brought firmly committed open educators into an inappropriate and inimical situation, for, in a real sense, people *are* program. None of the six was asked to stay a second year. One moved to an independent school, and one to a university lab school, where open learning is both permitted and encouraged. Thus, the year after their experience with the program, not one of the open educators was employed in public schools. This says something about change in the public schools, about resistance to open education, and about those who would make the schools more open. Altruistic intentions, impeccable academic credentials, abundant vigor, and unlimited educational vision will not, in themselves, suffice. As one of the custodians in the program put it, "That and a dime will get you a cup of coffee."

Seven Years Later

I do not feel that this case study constitutes a fair test of either the ideas or the practices of open education. From it we can conclude neither the worth nor the worthlessness of informal classrooms in public schools.

It is tempting to discuss this experience as out of the ordinary and irrelevant to other situations. From my subsequent work in other schools, I am convinced, however, that most public schools offer conditions which are similar to those in which the attempts of these six teachers failed. This is true in cities, suburbs, private schools, public schools, black schools, white schools—wherever educational change calls for significant departure from expected practice. The resistance we encountered was, no doubt, accentuated by idealism, by the newness of the program, by racial tensions, by inner-city problems, and by the novel, "experimental" quality surrounding open education in 1968. But any educator attempting to

introduce informal classrooms who believes these forms and intensities of resistance do not bear upon his or her own situation will be no less surprised and no less devastated than were the six teachers. For, no matter how we define quality education, efforts to change the schools will be met with resistance. The more significant the change, the more significant the resistance. Our experience was but one instance of a more prevalent condition.

Resistance to change in the direction of open education is an educational constant in public schools. Most parents' concepts of quality education are traditional. Most parents care deeply about their children and rely heavily upon "school" to bring them success, wealth, and satisfaction. Whereas inner-city parents might see school as providing their children a stable place in the job market, suburban parents depend equally heavily upon school to assure admission to Exeter, Harvard, and the medical or legal profession. These aspirations, although different, are held with equal tenacity. Anything which interferes will be fiercely opposed. When confronted with a kind of education which appears to threaten these expectations and differs so completely from the established path toward these goals, most parents fear for the success of their children. It is not surprising, then, that most parents view open classrooms as a risky, untried experiment with their children's lives—a gamble best not taken. Many inner-city parents see informal classrooms as appropriate for middle-class children who already "have it made" and have nothing to lose; many middle-class, suburban parents see informal classrooms as suitable for working-class children, many of whom may not be headed for college anyway and thus have little to lose. Few parents see open education as the best education for their children. For few administrators and teachers is the swim against this current appealing.

Unfortunately, many unwritten case studies of attempts to develop informal classrooms in American public schools now lie buried beneath epitaphs of "sloppy," "permissive," "anarchistic," "chaotic," or "laissez faire."

On the brighter side are the successes. An examination of the numerous informal programs which are working reveals some characteristics which may serve as guidelines for those who would make our schools more humane, productive, exciting places for children, parents, and teachers. In most successful programs:

Change emanates from a teacher's personal philosophy, his/her beliefs about children, learning, and knowledge, and less on classroom appearances.

Attention is given to the development of children's personal qualities, *not in place of but in addition to* development of language and mathematical skills.

Verbal labels and overt distinctions which attempt to categorize "informal classroom" and "traditional classroom" are minimized.

Supportive personnel within the schools, especially the principal, are available to support and help teachers.

Appropriate and abundant manipulative materials are available—frequently provided by teachers and students.

Teachers who have successfully taught in more formal classes, and who want to move toward a more child-centered program, are more likely to succeed than many beginning teachers.

Major changes such as materials, grouping, spatial organization, and evaluation are introduced gradually and in an orderly manner.

Parents and *teachers* are given some measure of choice concerning their participation in informal programs.

At this time it is not clear whether more informal, material-centered classrooms result in more academic, personal, and social growth for children than other kinds of learning environments. What is clear, however, is that informal, open classrooms—although difficult to develop and sustain in our public schools—*can* be developed and sustained if the innovator is able to subordinate his/her personal needs to the needs of children and to the realities of the institution. Otherwise open education will remain, in Pogo's phrase, an "insurmountable opportunity."

Teachers and Principals Speak

This chapter consists, simply, of the thoughts of good teachers and principals I have known and with whom I have worked. As you read through them, I hope you will get some sense of what it means and what it has meant to be a teacher or administrator committed to open education in an American school during the past ten years. You will in many cases find comfort in the sharing of similar experiences; you may also gain new understandings of the meaning of openness to some of its most thoughtful practitioners.—*V.R.*

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Of Failures, Problems, and Frustrations

I think my worst moments have been those times when I have felt alone and isolated. While I am willing to accept (and am rather proud) that my classroom may be different and unique, I am uneasy with the possibility that I may be, not only in my own boat, but on my own sea as well. Being within a public school framework, I want to feel a part of the whole and have parents, colleagues, and administrators feel this too. But when a parent requests his child be removed from my care; when a colleague reproaches my work without taking the time to understand it; when students from other classes talk down our program; or when one of our students takes a downward turn either academically, emotionally, or socially—all of these situations tend to elicit a feeling of frustration and isolation, even though I know that such circumstances are part of teaching.

When I decided to structure my classroom in a radically different way from what is considered normal for this age group, I realized that pressures would be intense. The pressure of personal failure and failure of the program tended to increase my sense of isolation and alienation from the whole. The longer our program is in operation, however, the more I have been able to accept such negative moments. As I absorb the impact of these experiences, I have often been able to understand more about myself and the strengths and weaknesses of my teaching.

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Over four hundred youngsters showed up on that first day, mostly bussed in and terribly resentful. This was not their school. They did not know us. They did not have any materials to work with. We did not have any innovative materials for working with them. The school had no routines, traditions, procedures for anything. I thought the surly, overaged, hyperactive, disadvantaged bunch of kids would tear the building apart brick by brick. The teachers were appalled, overcome, and frightened. Within two weeks a young man who I thought was the strongest teacher of all had resigned and from there on there were 11 major changes in six months in a faculty of 13 persons.

The parents added to the scene. Where were the textbooks? Why didn't we give homework? Why were the kids all mixed up (not in regular grades, etc.) Why didn't we have any discipline?

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"Chris, you're on Cloud Nine. You can't teach *every* child. We're simply not ready for that. The kids have just *got* to do first grade work. We've got standards and I want first grade teachers to teach the first grade curriculum."

"I've got standards, too! A teacher *must* accept the responsibility of meeting each child's needs, to the extent that this is possible. All of them can't do 'first grade' work. Lots of them can do 'third grade' work. Which should it be—must children meet *our* needs, or is the teacher going to listen to children and try to understand what *they* need to know and do?"

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That year my district superintendent gave me (I was a probationary principal) the lowest possible rating he could give me without failing me completely. He had laughed in the beginning and said "McDonough No. 15 is an experiment in whether you can get output with no input!" Now at the end of the first year he said, "I am very disappointed in McDonough No. 15." That's right. The administrators thought that in one year an inexperienced principal and staff with no materials, no time, no training, and with lots of angry kids could build a great new kind of school. I really can't blame them for thinking that. I had been willing to take on the challenge so I must have believed it too.

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In a classroom like mine, where children work individually on so many things, there is one danger that worries me—that the sense of community, of each one caring for each one, might be lost. My first year of teaching, on the worst days, I felt that it was indeed lost. All that summer I agonized over how to strike a balance in my new classroom, continuing to offer the children the chance to pursue individual interests, but maintaining that sense of groupness, that sense of caring for each other that I value very highly.

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I feel my largest frustrations have come from principals who have mandated uniformity throughout the school in class organization, structure, and curriculum—principals who have said, overtly or covertly, "Teach as I say."

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The key relationship has to do with the teacher and his interaction with the children. It is here that I feel that a major discrepancy between American and British "open" styles begins. The British style is very subtle, the camaraderie in the classroom has a line, behind the questing cooperativeness there is the ultimate authoritativeness of the teacher, the ultimate respect of the child for the adult. It is a cultural thing. When this is transposed into American society it has a different "feel" to it. Somehow, to me, it does not feel right. The children make the jump in the all or

nothing way, from subjection under the authoritarian regime (enforced respect) to almost the other end of the continuum, near-permissive disrespect. This may be something that I have perceived that is peculiar to my situation—but then it may be a cultural complication to be taken into consideration when "opening" the classroom in America that we do not have in England.

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Do you know that to try to extend interests beyond capabilities will kill the interests? That it is very important to know when to ask questions and when to keep quiet? Do you know that having creativity as part of the curriculum is sometimes mistaken for lack of structure? The following quote illustrates this: "I want Johnnie to be in an unstructured situation where he can be creative and do his own thing." Also this quote: "I think Janie will do well in your unstructured program since she has a mind of her own and has difficulty relating to a group." Another: "I want Johnnie to have constant success so he will grow up with a good self-concept."

How realistic is it to assume that a learning situation can exist without structure? How realistic is it to assume that Johnnie should never be criticized or corrected? In a relationship of trust we are able to say, "You use a capital letter at the beginning of a sentence," without Johnnie having an old-fashioned decline. His response is usually "Oh." Is it realistic to assume that openness means no group instruction of any sort? Or that skills instruction is not necessary?

Did you realize that all seven year olds do not come to school wanting to help the younger children? That, in fact, if you could listen in on the playground conversation it is sometimes very threatening? "You get out of my way kid or I'll twist your arm till it comes off!" You find out this sort of thing is going on when Johnnie's mother drops in one day and relates the nightmares that he is having about his arm dropping off.

We have learned that other things we take for granted or assume about children are not true. For example: "I provide a stimulating environment and the children proceed to choose meaningful activities and study them in depth." Did you know that

children of primary age, as a general rule, do not choose to study a subject in depth? Lacking necessary skills and experience, how deep can you go? Even when offering stimulating choices children will often assume that "doing nothing" is one of them. Did you know that no matter how hard you as a teacher try not to make a distinction between work and play, the children make such a distinction?

We start our day with a planning group. Each teacher has a group of children and together they plan their day and write their contract. Would you believe that sometimes children feel if they have made the plan and together with the teacher they have recorded it, that this means the actual work is done? That if they have checked reading on the contract they will refuse to read for anyone else all day long? That the manner in which a contract is made can result in limiting the activity of a youngster rather than extending it? It surprised us to find out that first year that some children felt in this open classroom it meant that "you could do anything you wanted to when you wanted to" regardless of anyone else?

Would you further believe that no matter how hard you tried there were children who were able to go through the whole day and not accomplish a single thing and you would not realize this until five o'clock in the afternoon when he was long gone? Or to top that, no matter how much effort you put into planning his next day that he may do the same thing? That when learning is fun, children's idea of it may be like this child's description: "You have three recesses and little bits of time in between. We squeeze work into the little bits of time."

Did you realize that poor housekeeping, besides wrecking some marriages, can come close to wrecking a program? That proper storage is necessary to keep order? This lack of order was one of the greatest agonies during the first year. It not only led to catastrophies within the classroom, but to profound and, yes, sometimes profane statements by the janitors, "What is education today? From where I sit it's do your own thing and leave a blankety blank trail behind that is not only messy but wasteful. When I went to school, boy, you toed the mark and you knew when you were learning the three R's. When are we going back to the good old days when school was school?"

Incidentally, none of them had liked school enough to continue attending even though they were capable. Replacing all the goodies such as magic markers and very high quality white paper once a week did not set too well with the budget committee either. Another thing—why shouldn't twenty-four children all wearing approximately the same size and style of shoe be able to go around in sock feet? We had many bad moments at closing time sending Susie home without one shoe assuring Mother that it would be found tomorrow if it was at all possible. And do you know it doesn't work to let five and six year olds clean up paint messes on their own? "Washable" it says on the paint can, but according to Mother it isn't. It's amazing how even a long shirt of Dad's doesn't protect clothes when mopping the floor. It's so much fun to take time out to water play when you're supposed to be cleaning up!

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Five years later we remain hopeful but angry, not with our students, not with the parents, but rather we are angry with the built-in inhibitors—the educational bureaucracy. The educational bureaucracy resists change not only in the area of curriculum, it resists violently any movement to better understand itself. It can be reported that five years later the bureaucracy has slowed the pace of change for me, not direction of change within me.

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Principals in larger numbers must take greater risks with themselves in clarifying what life should be within the walls of the school. Principals in larger numbers must risk and endure greater sacrifice in their personal lives if we are to succeed in bringing to our students a better quality of life in school.

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Of Success and Fulfillment

I remember one year I was having to put a lot of energy in on that class to set them sailing on their own, so much that I guess I didn't realize it had happened or was not emotionally ready myself

for the release until one day when I had joined a group planning a play. I came equipped with my shorthand notebook, ready to write down their script for them. I just sat there, pencil poised, listening. Two children also had pencil and paper. They were trying to write the script very slowly, missing parts, asking how to spell words—very laborious kind of task, I thought. Shortly one of the little girls said to me softly, "Mrs. Murray, maybe some other group needs you." Was this what I had been working for? Hoping for? Looking forward to? I had a very strange feeling inside of me. She must have read my expression well because then she put her hand gently on my arm and added, "We'll come and get you if we need you, honest we will."

This declaration moved me out of their way. The play and their script (I could have done so much better!) progressed as they would have it. Their production was a great success. There is a fine line between being a facilitator of learning and a deterrent. These children had the dictating and writing experience that came right from them—but I, of course, could have done a much smoother job, and so much more efficiently! Oh well . . .

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The role of the administrator in open education is not one of being on the outside of the classroom looking in as it so often is in the traditional setting. You are an integral part of the program, you know the teachers, the children, and the parents and from this you draw your leadership. I can't honestly remember the last time I issued an ultimatum, dictated a policy, or had a completely negative conference with a teacher, pupil, or parent.

My office has a large window that allows me to see the whole hall; it also has an open door. It is used for coffee, lunch, storage, rap sessions, and conferences. It houses a professional library, a large desk cluttered with notes, the janitor's closet, and a cardboard box of treasures belonging to a seven year old. Oh yes, it also has bandaids, Bactine, and a listening ear. My most important contributions are being aware of what is going on, guiding, giving support, making suggestions, offering constructive criticism, and hiring the right personnel.

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Happiness is watching someone who had no particular direction when he started school getting completely involved with a project on whales and learning how to read and write and express himself orally because he is interested in learning. It's listening to a child say to his mother, "I want to go to school even though I have a fever and don't feel good." It's hearing a child say to you on Friday afternoon when you say have a nice weekend, "Darn, is tomorrow Saturday already?" It's kids wanting to stay in from recess to continue working. It's also having children anxious to show their schoolroom and work to older brothers and sisters, hearing comments from upper grade school teachers, after spending an afternoon teaching in the lower grades saying, "I can't believe that children can go from one task to another without a teacher having to direct every step of the way. How do you do it?" It's being able to look at each child as an individual and not having to lump them into a reading group where they feel either very inferior to everyone else or, just as destructive, feel very superior.

It's not hearing a teacher call "Johnnie, sit down and be quiet" fifty times a day because Johnnie is more restless than some and keeps inventing unacceptable means of moving or asking for attention. It's not having all the other kids say, "Peter did it," because the teacher has reprimanded him so often in front of the class the kids have picked it up. It's not having Janie throw up because school makes her so nervous she's sick. We haven't had one incident of this since we started our open classroom and I remember when it was common procedure to have to call the janitor to sprinkle that sand and stuff at least once a week.

It's having a team of teachers working together, being able to disagree professionally without being personal, and being so dedicated as to not watch the clock. It's being able to walk into a classroom as an administrator and sit down with an individual or a group without the teacher and pupils each feeling, "Today is the day I'm being evaluated." It's being included as a member of the team and having your suggestions accepted or professionally challenged. It's having parents trust you enough to come to school with legitimate questions and not be on the defensive. It's being able to ask your teachers at five in the afternoon after a full day, "Would you go back to the other way?" and being sure they are going to cry in unison "No!"

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Most of what I've learned about being a principal I've learned from good teachers who were determined not to give up. One such finally made me see that we had to develop the capacity to look at the tiny bits of progress we made and gain strength from them. Just one kid overheard saying to another, "Hey don't write on the walls. This is our school," is something to rejoice over. One teacher who smiles at the end of a day and says, "Did you notice? The cafeteria wasn't quite so god-awful noisy today!" is something to go home and gloat over. One parent who comes to school spoiling for a fight and goes away saying "I certainly agree with you about inner control" is cause for jubilance. Throughout the first year we clung to those bits of victory to keep ourselves afloat in the angry waters. Progress, change, doesn't come sweepingly. It comes disguised among the daily vicissitudes and it takes a sensitive and determined eye to detect it.

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I feel very uncomfortable, though, with an art center where only messing about occurs. (I guess I would feel equally uncomfortable with an art center where messing about never occurs.) There is a place in art, as in writing and in puppetry, for the development of skills. Each of these past two years, we have worked in my room and with the children next door to develop a sequence of activities aimed at giving children specific skills with specific media.

Last year we worked with fibers and with clay, this year we are working with printing techniques. I feel strongly that children ought to have good tools and good materials so that their experiences with these media are successful. Too often I think we settle for shoddy goods because they are cheaper and they are "only for children." There is very little more fulfilling than making something beautiful with your own hands, very little more demoralizing than having it spoiled because the yarn broke, or the printing ink blotched, or the clay dried too fast.

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During this period the most successful change has occurred within myself. I have discovered that the title of "principal" has

There is very little more fulfilling than making something beautiful with your own hands.

little meaning unless the principles or values in one's life are open to scrutiny. For me, these years have provided an opportunity to look deeply into myself in an attempt to find out who I am.

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In looking back over the high and low points during my past five years of open classroom teaching, I tend to remember best the positive moments. Perhaps I do because I prefer to avoid thinking about troubled times; I like to think it is because I try to build upon the exciting and successful happenings. Let me share a few . . .

—Sonya, a fifth grader, could hardly read or write, considered herself "mental" and had once been held back in elementary school. She would not converse with me about anything; her favorite word was "stuff." Before the year ended she had

produced superb work in clay, printing, and painting; written three exceptional stories with intriguing illustrations; and become an active participant in our class. (Her second year with me was not as successful because Sonya went through a difficult growing period; I seemed to be the adult with whom she could test her values.)

—Kendra's parents told us that she used to go to school with stomach pains and headaches. Since she has been with us, however, these symptoms have ceased. Yet, life for her in school is difficult; her academic capabilities and social skills are weak. Recently she baked a surprise birthday cake for a friend and she made a watercolor, inked it, wrote a poem on it, and asked to have it mounted. Two small events, but each showing initiative and a whisper of the confidence she is getting and must develop.

—Mark arrived, a fifth grader, stubborn, alone, reluctant, and practically unmanageable. His personal credo rested on the assumption that what to do is to do what nobody else is doing, especially when in a group. He despised testing and had thrown tantrums when asked to take tests. Now that he has been with us for a year and a half, he is still stubborn, recalcitrant, and independent. Yet he has good friends, shows unusual creativity, produces some excellent work, tries hard on tests, and has become an accepted, albeit unique, member of the class. He was instrumental in developing a class bank for savings and loans.

—Don's awkwardness, shyness, and passivity isolated him from his peers. He used to be ridiculed and picked on by others. Since he has been with us, negative behavior toward him has ceased. He is accepted as he is; some students respect him for his varied and unusual talents. Not yet an eager and confident pursuer of academic knowledge, he is, however, at home with us. (How much of his success is because of our class, I do not know, but I am glad to be a part of his happiness.)

—Jerry arrived as a bossy, somewhat arrogant person. He preferred putting down younger and less able peers and hid among the big boys. He was uncomfortable to be with and he seemed uncomfortable with himself. By the end of the year he had become a class leader, respected for his intelligence and wit, and liked for

his sense of humor. His academic prowess improved and his achievements were exceptional in math, games, social studies, movement, and drama.

—Nikki returned this year as an eighth grader after being with me in sixth grade. Recognized always as a bright, capable, and talented student, she has taken full advantage of our spectrum of challenges, assignments, and choices. She willingly ventures into new experiences with vigor and earnestness. Poems, stories, plays, and conversations are fluent and delightful. The other day she sat down for half an hour with two of our less able, younger, and "troublesome" students simply to converse and share thoughts about a mutual assignment. Her comment: "Ben and Jack are really interesting people and have a lot to say!"

—Sara returned for her second year with me, but without her closest friends. She knew that this year could not match the specialness of the preceding one. Yet, she has become an integral part of the new group. During our outing in the autumn she composed a poem, which she shared with everyone by a fireside on a cold night, that said precisely the meaning of our being together. I will never forget that experience.

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As the administrator of a large (910) K-6 rural, poverty-pocket school that is serving some 185 more children than it has any right to do, I have been an organic part of, as well as witness to, a miracle.

A school as unwieldy as ours, situated in a rural town ill-equipped to finance poorly conceived programs and trendy ventures, must be very sure of its direction. We try to recognize our problems, cope with them, alleviate them, dissipate them.

Somewhere along this continuum of frustration we looked at the child, took a firm resolve that his/her needs do, indeed, come first and resolved at the same time to do more than discuss the situation.

We began with ourselves, our philosophy, our objectives, our personal characteristics, our teaching style, our educational expectations, our dissatisfactions. We began an opening process—opening our minds, sharing ideas and findings—and we began to

look for help. Arriving at this point was not easy for a staff of 47 teachers. For some it has proved, to date at least, impossible; however we keep moving on in a dogged, determined way.

When we, indirectly, and perhaps inadvertently, became an advisory school with the University of Connecticut Center for Open Education, we had taken the boldest and best step in the 14-year history of our "new" school.

We found people who are child advocates. These people—Marilyn and Christine, Carolyn and Ernestine, Peter and Don, Kay, Joyce, and Claudia, along with a host of other inspired teachers and their moving spirit, Vincent Rogers—came to the rural Northeast. In a low-profile, unjudging manner, they accepted us as we were. We began to allow ourselves the luxury of trusting them, and slowly we began to believe in ourselves.

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One parent, who had frequently threatened to remove his child from our classroom and who took issue with our approach to learning and teaching, wrote the following after receiving our third quarter report: "I can see that we were wrong in our belief that you folks had not accurately assessed Allen's performance; in fact, I can say in frankness that you have produced evidence of the best understanding of the boy that has ever come out of his classroom."

Another parent wrote us after her daughter completed her sixth grade year with us, "Karen's development has been a joy for me to behold, not only in the strict academic sense but in her development as a more social creature. In her previous school experience there have been efforts made to 'bring her out of herself' and influence her to share her innate talents. These rather 'hard sell' efforts never met with the success which your approach of affectionate interest has achieved. Thank you."

One father, who had not previously visited my classroom, was prepared to transfer his daughter to a more structured one. But after spending a couple of hours working on our math materials with his daughter during a parents' night, he became supportive of our—and more importantly, of her—efforts.

Sometimes parents take time to comprehend the nature and purposes of our program at a level beyond the ordinary. Once a

parent replied to a newsletter and report on her child: "It is my growing conviction that encouragement and stimulation at this age (from playschool through junior high school) with the kind of respect and attention all of you give to even the most minimal efforts of your students, plus the obvious admiration given to their splendid efforts and successes, is a good and reasonable way to teach. Thinking back to my own school days, as well as those of my older children, I think that what I remember most strongly is the cold fear induced by the constant demand for perfection while my own (albeit poor and faltering) efforts were either ignored, criticized, or derided. Because Dan has been 'playing' *Diplomacy* he has learned a whole host of other things I was made to learn and promptly forgot a long time ago. He knows clearly the difference between *his* calligraphy and Mr. Thoms'. *This* is what is important now. I do *not* believe that the discipline of sustained work is mostly taught. It *emerges* when the inner motivation meets exterior elements that encourage its emergence." (This parent is now a member of our school board.)

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So what has really happened in four years? We've hung onto our vision of what kind of school we wanted. We've learned what the real resources are and we've learned to continually look for new possibilities in the use of those resources. We've learned that help has come from within ourselves, and more important, we've learned that's where freedom comes from too. Time after time school people from outside have said to me, "You mean your school system lets you do things like abolish report cards and raise chickens? I'd love to change my school too, but they would never allow me to!" That is simply a myth. One has the freedom one is willing to carve out in this school system and, I'd venture to say, any school system. Strength and direction for the leap involved in conversion come from your staff, your parents, your children, and you. It can't be superimposed on you from the outside, and it can't be taken away from you either, once you have it.

Editor's Note: My thanks to Irene Campbell, Lucianne Carmichael, Mary Fisher, Gail Freeman, Dick Hanelin, LeNore Murray, Giles Payne, Chris Rogers, Frank Thoms, and Ben Veal for so ably sharing their thoughts with us.—*V. R.*

What Does Research Say About Open Education?

Lyn S. Martin

Vincent Rogers, writing in his book *Teaching in the British Primary School,*[1] made this observation as he summed up his experiences as a Fulbright scholar who had completed a year-long study of open schools in Britain:

> We need more systematic evaluation of the achievements of the schools described in this book. Those of us fortunate enough to have visited a good British primary school recognize almost intuitively that what we are seeing is mostly right, mostly effective, mostly sound. On the other hand, many educators have a way of asking questions that cannot be answered adequately by referring to one's personal observations. How, in fact, do children in such schools perform on various objective measures when compared to children who have had quite a different sort of school experience? Obviously, academic achievement is not the basic goal of such schools, but since it is not, what effects do these schools have on children's attitudes towards school, teachers, and peers? How does this experience affect their approach to learning, the problem-solving strategies they adopt, their persistence, their curiosity?
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> The nondisciple deserves answers to these questions and to many more. Obviously, one cannot wait until all the data are in, since children have a way of appearing, growing, learning, and developing *now*. Decisions about ways of teaching children and organizing schools have to be made on the basis of the best evidence that is currently available. Nevertheless, every attempt should be made to provide more objective evidence whenever possible. This, it seems, would greatly

[1] Vincent R. Rogers. *Teaching in the British Primary School*. New York: Macmillan Publishing Co. Inc., 1970. p. 297.

strengthen the eloquent arguments presented by the contributors to this book and by others who are similarly convinced that they have, indeed, found a "better way."

A new book, *More Than Joy: What Does Research Say About Open Education?* by Lyn S. Martin (New York: Agathon Press, 1976), abstracts and summarizes several hundred studies from numerous disciplines which provide some tentative answers to the questions raised by Rogers six years ago.

The questions teachers and administrators are asked about their open education programs are varied and voluminous, but certain themes recur repeatedly. Answers to these questions are sometimes difficult for educators to provide, yet support and understanding are crucial to the success of any innovative program. The research results presented here attempt to answer some of these commonly asked questions. The sampling of cited studies are supported by additional research in the document *More Than Joy:* . . ., but even in this large work it was impossible to consider every relevant research study. We have, however, attempted to derive meaningful answers from a diverse body of literature.

Can Children Really Direct Their Own Learning?

An important concern of teachers and parents today is: Can children make good choices? Can they choose activities that will be in their long-range interest as well as for their short-term enjoyment? Teachers contemplating a move towards openness fear that the children will choose not to do anything constructive. Furthermore, teachers are concerned that a lessening of control will result in more discipline problems. Yet, choice in school does not mean the absence of control over children's conduct with regard to the rights and needs of others, nor does it mean a laissez-faire attitude toward learning and quality of achievement.

Data from studies dealing with child-rearing techniques lend support to the arguments for choice and independence. Parents who encourage early self-reliance in their children have children who are more highly motivated to achieve than children whose parents do not (Lickona, 1971). Achievement motivation is,

in turn, positively related to measured intelligence and school achievement. In fact, children with high achievement motivation show increases in IQ scores as they grow older, whereas children with low achievement motivation show losses in measured IQ (Lickona, 1971). Anderson and Evans (1973) studied homes where high achievement training took place. However, the children in these homes tended *not* to be high achievers. In homes where there was high *independence* training, however, children were far more likely to be high achievers.

Studies dealing directly with open classrooms find that children directing their own learning achieve as well as those taught in teacher-directed lessons (Reel, 1973). The open classroom findings also deny that discipline problems increase when teachers reduce control over their children's choices of activities. A comparative study done at Bank Street College (Ross and Zimiles, 1973) found that the open classrooms had more expressive and less destructive behaviors than traditional ones. Furthermore, open classroom students maintain stable behavior patterns when the teacher leaves the room, while those in traditional classes show far more incidents of inappropriate behavior (Goldupp, n.d.). It would appear that the self-direction and independence fostered in open classrooms may actually reduce discipline problems, possibly from a reduced need to rebel against control.

The conclusion to be drawn from this research indicates that while relatively low achievement motivation in school is related to a lack of independence and choice on the part of the child, children who have independence and self-direction will develop higher achievement motivation, fewer discipline problems, and more effective learning. Independence and self-direction are fostered in the open classroom.

What Are the Effects of Discovery Learning and the Insights of Piaget?

Piaget has maintained that a child's active involvement in learning is a crucial aspect of the developmental process. When the child has some say about what to learn, he is free to gather information in whatever sequence is most meaningful to him. The

child's learning is based on his own intellectual needs, and he proceeds at his own pace. Open classrooms have adopted many of Piaget's principles, recognizing that the teacher still plays a very important role in responding to and stimulating the child's interest, and in helping him to acquire knowledge and understanding.

Central to the Piagetian approach are the concepts of discovery learning, the use of concrete activities, play, manipulative materials, and interaction with others. A number of research studies have recently attempted to shed more light on the value of this kind of learning, particularly for the critical issue of transfer or generalization of learning. Research findings point to valuable gains, not only in achievement but in concept development and ability to transfer, reapply, and retain what has been learned. (Olander and Robertson, 1973; Simmons and Esler, 1972; Vance and Kieren, 1972; Bring, 1971; Cook, 1968). Studies vary in their ability to support the age-specific classifications of development determined by Piaget. However, it has been found that even at the ninth grade level, low achievers have benefitted greatly using a manipulative Piagetian curriculum in groups with increased verbal interaction (Johnson, 1972).

It would appear from the research on process materials, the discovery approach, and Piagetian curricula that this type of learning is a definite aid to the development of understanding and knowledge. The open classroom, in its acceptance and encouragement of these learning styles, would presumably benefit learners as described in the research results.

What Are the Effects of Vertical or Cross-Age Groupings?

The studies dealing with vertical grouping patterns basically indicate affective, or noncognitive advantages for students. Grouping by ability has been found to increase competition among students (Morse, 1972) and to decrease motivation (Zweibelson, 1967), interesting findings in light of the common belief that competition *increases* motivation. On the other hand, heterogeneous grouping of students across abilities and ages seems to have specific advantages. Positive increases in self-concept have been noted, as well as improved attitudes

toward school and schoolwork (Mycock, 1967; Junell, 1971; Samuels, 1969). This might be related to the wider range of learning possibilities available in a varied group of children as well as a reduction in anxiety and pressure to conform to a homogeneous group.

One study found that children experienced less admission stress in the mixed-age classroom. They socialized more readily, and with a wider range of children. In addition, more roles are available as models due to the maturity and ability differences present in the classroom (Mycock, 1967). All of these factors promote better emotional stability and security among young or new children, an important factor in early learning and attitude toward school.

Overall, there are indications of advantages for vertical, cross-age, or family grouping, and these advantages are primarily affective and social. Rigid grouping across subjects can limit the extent to which children can learn from each other and denies variations in abilities and talents. Vertical grouping exposes children to a wider variety of children and experiences, and promotes positive affective feelings which are recognized as having strong implications for learning.

What Are the Noncognitive, or Affective, Outcomes in Open Classrooms?

Educational outcomes are generally divided into two categories: cognitive and noncognitive (affective). Affective factors include motivation, attitudes, learning styles, social skills, self-awareness, and even happiness and quality of life. Open educators have recently begun to explore this important facet of learning, generally concentrating on the affective factors of self-concept and attitude, for which there are fairly reliable and valid scales. Some of the recent findings from studies of open classrooms indicate that the hypothesized advantages in both these areas are, indeed, present. On self-concept and self-esteem measures, the open classroom children far surpass the traditional classroom children in many comparative studies. In addition, it appears that with increases in age and grade level, the differences

become even more pronounced (Krenkel, 1973; Wilson, 1972; Purkey, 1970). It would appear that the decreased competition and comparison that take place in the open classroom may account for many affective advantages for children. Attitudinal scales have also been administered, showing significantly more positive attitudes toward teachers, school, and the curriculum in open classrooms than in traditional ones (Shapiro, 1972; Tuckman *et al.*, 1973; Weiss, 1972; Wilson, 1972).

Probably the most important advantage of these findings has been for the underachieving child. Boys, in particular, have been found to be underachieving in their primary years. Interesting findings from open classroom studies indicate that this trend may be reversible. Jones (1972) looked at underachieving boys entering open programs and noted definite improvement in achievement over time. He attributed their improvement to a higher self-concept, lower self-criticism, decreased pressure to achieve, and less comparative evaluation by teachers.

Another important affective factor, coming more and more into research arenas, is the concept of locus of control. Developing a belief that one can act to control his own destiny (internal control) requires a certain kind of environment. If children have little or no say in their learning, and if rewards (praise and blame) are distributed in an indiscriminate manner, it is probable that most children will soon learn that *others* control much of their lives and that success is more a matter of luck than a matter of skill. This latter attitude is known as external locus of control.

According to the immense Coleman Report of 1966, "The child's feelings about his ability to control his own destiny accounted more for his achievement in school than did the total effect of the curriculum, the teachers, and the physical and material support to which he was exposed." (Coleman, 1966). Stephens (1971, 1972) discovered internals to have higher IQ scores, and to be more active and aggressive, to exhibit much exploratory behavior and excitement about learning. In contrast, externals were more passive, compliant, nonexploratory, and inattentive. It has further been found that the internal child's performance increases over time, while the external's decreases. The internals

have greater persistance on intellectual tasks, and generally better performance and rate of acquisition on cognitive skills than externals (Chance, 1968).

Early studies are beginning to come in on the locus of control factor and open school programs. It may be that open school children do develop more internal control, as evidenced by these studies. Knowles (1967) found that both black and white children in open school settings had significantly more internal control than children in traditional or even programmed learning settings.

It may be inferred from the research that, since open classrooms promote choice, independence, success experiences, and self-direction in learning (all of which enhance feelings of internal control); since open classroom children are showing more internality than traditional classroom children; and since internality has been found to be an indicant of school and later life success, there may be compelling reasons to allow children more freedom in their approach to learning in school. Furthermore, the affective advantages found in the open classroom for increased self-concept and positive attitudes toward school serve to further enhance learning in this setting.

Does the Open Classroom Foster More Creativity in Students?

Creative persons have been identified as those with a wide range of interests, a lack of conventionality, and an openness to new experiences. They are divergent thinkers and risk takers, with high levels of flexibility. Indicators of creative talent include high levels of interest, involvement, sensitivity, and free expression. A playful and relatively permissive learning environment has been found to facilitate creative development and the production of unique responses associated with creativity seems to be a function of the amount of time spent associating with a single stimulus or idea (Wallach and Kogan, 1965a; Fiers and Morgan, 1973). In addition, encouragement of creative expression by parents and teachers, a flexible classroom approach with expansion and encouragement of student-initiated ideas, much verbal interaction, and freedom to question, rearrange and combine old ideas and concepts also promote creative development (Harrison, 1972;

Anderson, 1972; Torrance, 1972; Wallach and Kogan, 1965b). Certain blockages to creativity have also been determined. These include a lack of self-discipline, overattachment to people or things, absence of commitment, fear of risk taking, feelings of inferiority, mistaken estimates of talent, and constant outside evaluation by others (Alamshah, 1972; Rogers, 1961).

From these findings, it would appear that the open classroom provides an environment more consistent with the development of creativity in children than a traditional one. Comparative studies of open and traditional classrooms have found significant differences in creativity favoring the open classroom, and these differences increase with time spent in the open program (Wilson, 1972; Shapiro, 1972).

In summary, the conditions that promote the emergence or development of creative abilities seem to be those of the more informal, more individualistic, and more open learning environments, and early studies on creativity in the open classrooms are showing positive findings for the development of this intellectual capacity.

Are Students Achieving As Well in the Open Classroom?

The area of student achievement, as measured by standardized tests of cognitive ability, is perhaps of greatest interest to educators and researchers. The concern for achievement in open classrooms is heightened by the nature of the open learning processes and environments which are unfamiliar to many adults in terms of their own school experience. There is much skepticism regarding academic skills development in open classrooms, yet positive findings of either equal or superior achievement in the open classroom as compared to the traditional classroom occur more often than not in the few direct comparison studies available in this area.

An early comparison of British children in open and traditional classrooms showed equal or superior achievement in nearly all academic areas studied (Gardner, 1968). Shapiro of Bank Street (1971) found that students in the open classrooms attained superior

Facing page: **A playful and relatively permissive learning environment has been found to facilitate creative development.**

scores on achievement tests despite the fact that the only available traditional control groups were in high ability classes and had been in school longer. Comparative research in Philadelphia's School District #6 revealed that Iowa Tests given two years after a change to an open classroom approach in Follow-Through classes showed gains which exceeded those of similar classes before the introduction of the program, as well as those made district-wide and in other Title I elementary schools. (Philadelphia, 1973). The school system of New Orleans also investigated the effects of a modified curriculum involving activity-oriented, integrated learning eight months after the introduction of the program. The changes proved very effective—children demonstrated increased skill on motor-visual tasks, greater fluency in vocabulary and oral communication, and an increased awareness of themselves and their peers (New Orleans, 1968).

Numerous other direct comparison studies corroborate the findings that children in the open/informal programs are doing as well as or better than their peers in the traditional programs on standardized tests of achievement and affective measures (Case, 1971; Godde, 1973; Greener, 1973; Rosner, 1973; Scheiner, 1969; Williams, 1970).

Where children in the open classroom do better on academic achievement tests than do children in traditional classrooms, certain implications for learning are evident. Jones (1972) discovered that the most reliable predictors of achievement success were a minimum of teacher (or external) evaluation of students and decreased pressure to achieve. Self-evaluation and self-pacing as characteristics of open programs may be two factors which support increased achievement in open programs. The noncognitive advantages and the development of independence (already discussed) also play an important role in achievement motivation. Overall, then, the findings indicate that children directing their own learning can achieve as well as or better than traditionally taught groups on standardized achievement tests. These findings are particularly remarkable in light of the fact that the tests used were designed specifically for traditional classrooms, and contain many negative biases for open classroom children.

Are Children Reading As Well in the Open Classroom?

Since reading is an area of great interest, particularly at the elementary level, the topic is well explored in the literature and is treated separately here.

Most open classroom teachers rely heavily on individualized reading programs and what is known as the "Language Experience" (LE) approach to the teaching of reading. Basically, children learn to read and write words and stories based on their own interests, usually when they indicate readiness and enthusiasm, later selecting their own reading materials from a diverse collection. Teachers monitor each child individually, keeping work samples and daily records. This is in sharp contrast to the more widely used basal reader-workbook approach. In many cases, of course, both open and traditional teachers use elements of both of these (and other) methods. On the other hand the LE approach is generally emphasized as the *basic* approach to reading among open teachers, while more traditional teachers tend to rely rather heavily on standardized reading programs of various sorts.

Researchers have compared these two approaches, and generally the studies show that the LE approach produces reading performances equal, if not superior, to basal and other methods (Spache, 1972; Crandall, 1973). It is interesting that, even when not corrected, LE pupils spell regular and irregular words better than basal pupils (Cramer, 1970). This is probably due to exposure to more words from the use of more varied and numerous books with "noncontrolled" vocabularies. In addition, the experience of writing their own books, using words they already know in speech, exposes children to far more words than they would encounter in a basal reading program. Graves' (1973) research revealed that if classroom environments provide opportunity for choice of activities, children produce more writing on their own than when teachers give specific, assigned writing tasks.

Further, the research results indicate that when the LE approach is used, knowledge increases in other content areas as well (Spache, 1972), and the advantages of individualized and interest-based reading carry into the secondary levels (McKay, 1969; Schwartz, 1972). Improved attitudes toward reading were also evidenced in the Gardner (1968) study in that children

in the open programs chose reading as an activity more than twice as often as those in the traditional programs.

In addition, the recently published British "Bullock Report" (full title is *A Language for Life*) [2] gives overwhelming support to language experience approaches to the teaching of reading. The report, which gives the findings of a royal commission on the teaching of reading, is replete with authoritative statements by British reading and research specialists. Essentially they conclude that Language Experience is *the* way to teach reading most effectively to most children.

In general, then, the studies point to gains in reading, and advantages in affective areas, due to reduced competition and anxiety, individualization, and the increased interest in reading.

What Is the Significance of This Research?

It must be remembered that research in education rarely "proves" anything once and for all. However, a number of valid and consistent findings can add to our confidence about proceeding with more innovative ways. The support for open education evidenced here (and supplemented in *More Than Joy: . . .*) provides a rationale for continued interest in the approach and a basis for further development and research in this area.

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Table 36

Correlations of Reciprocal Category System (1970)
With Nonentering First Grade Growth Scores

Factor	Group			Individual			Total		
	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.	Skill	Conc.
1. Drill with Teacher Acceptance and Pupil Initiation vs Teacher and Pupil Initiation	-.12	.41	.35	.27	.45	.28	.14	.45	.31
2. Varied Pupil Directed Interaction	.36	-.31	-.23	-.06	-.30	-.26	.10	-.31	-.26
3. Warm, Nonevaluative Teaching vs Teacher Correction	-.28	-.08	-.12	-.48	-.25	-.08	-.45	-.23	-.09
4. Teacher Amplification in Extended Talk	.35	.16	.27	.25	.01	.20	.31	.04	.23
5. Pupil Talk	.29	.67*	.40	.60*	.47	.56	.53	.52	.51
6. Teacher Initiation with Pupil Interruption vs Teacher Question	.47	-.19	.06	-.06	-.37	.12	.14	-.33	.10
7. Teacher Direction vs Pupil Initiation	-.06	.11	.10	.11	.25	.09	.05	.23	.10
8. Supportive Pupil Talk	.04	.17	-.03	.15	.22	-.07	.12	.22	-.06

N = 12; p.05 = .58; p.01 = .71 *p <.05

Table 37

Reciprocal Category System

Factor 1 - Drill with Teacher Acceptance and Pupil Initiation vs Teacher and Pupil Initiation

Item	Loading	Description
1	.44	Teacher warms, informalizes the climate
2	.79	Teacher accepts
4	.66	Teacher elicits
11	.72	Pupil responds
19	.62	Student response to teacher
21	.50	Teacher extended indirect
26	.75	Teacher narrow question
34	.57	Teacher-teacher flexibility
40	.46	Teacher elicit-initiate, percent
46	.67	Teacher talk
48	.76	Drill
52	.68	Pupil initiation following teacher indirect
55	.67	Teacher indirect-direct, percent
58	.58	Total number of tallies for all batches (raw)
59	.74	Total teacher talk (raw tallies) divided by number of batches
13	-.45	Pupil directs
18	-.46	Pupil initiation
51	-.54	Inquiry-drill, percent
56	-.47	Teacher initiation, percent

Eigenvalue = 9.07

teacher and pupils. Apparently the major distinction is between initiation and response. The factor discriminates significantly between programs both years, but does not relate to pupil growth.

(2) Varied Pupil Directed Interaction. This factor is labeled "varied" and "pupil directed" because the only teacher talk which appears on it either is responsive to a pupil question or is interactive with a pupil (See Table 38). Most items reflect pupil talk without teacher involvement. The varieties of pupil talk are unusual. Pupils ask questions, initiate, direct, correct, and ask broad questions. The varieties of kinds of interaction between teacher and pupil and between pupils are high. The factor presumably reflects a relatively free situation.

The factor discriminates significantly between programs both years. It does not correlate significantly with pupil growth, but it approaches significance for 1969 first grade Abstract, and also correlates low positive for 1970 nonentering Group Abstract.

(3) Warm, Nonevaluative Teaching vs Teacher Correction. While the factor represents teacher warmth on the positive pole, the occurrence of two heavily loading items which involve acceptance as a ratio to other behavior, and the fact that the negative pole of the factor has an item which loads heavily for teacher correction, suggests that the dimension is basically one of teacher acceptance vs correction (Table 39).

The factor does not discriminate programs significantly, although two groups are created in the 1970 data, nor does it relate significantly to pupil growth. Although several moderately high correlations appear, they are inconsistent in direction, and probably represent small sample variability.

(4) Teacher Amplification in Extended Talk. The heaviest loadings reflect teacher amplification (extension and use) of pupil ideas, but the picture of extended teacher talk is supported by steady-state teacher talk, extended questions,

Table 38

Reciprocal Category System

Factor 2 - Varied Pupil Directed Interaction

Item	Loading	Description
5	.58	Teacher responds
10	.85	Pupil elicits
12	.45	Pupil initiates
13	.61	Pupil directs
14	.57	Pupil corrects
28	.49	Pupil broad question
32	.62	Pupil question, teacher question
33	.69	Pupil question, teacher response
35	.84	Teacher-pupil flexibility
36	.87	Pupil-teacher flexibility
37	.79	Pupil-pupil flexibility
38	.88	Total flexibility
54	.60	Pupil direction and criticism

Eigenvalue = 8.20

Table 39

Reciprocal Category System

Factor 3 - Warm, Nonevaluative Teaching vs Teacher Correction

Item	Loading	Description
1	.43	Teacher warms, informalizes the climate
17	.79	Teacher acceptance-rejection, percent
23	.43	Teacher revised I/D
39	.84	Teacher accept-correct, percent
8	-.74	Teacher corrects
58	-.43	Total number of tallies for all batches (raw)

Eigenvalue = 3.86

and the average length of teacher initiation (Table 40). The two minimally loading items on the negative pole are not named, but there is a suggestion that the extended questions the teacher asks are not broad questions.

The factor does not differentiate between programs. It does show a correlation with pupil growth significant at the one percent level, with 1969 first grade Abstract growth, and minimal support for this correlation for 1970 nonentering first grade Group Abstract.

(5) Pupil Talk. The positive pole of the factor is made up of various combinations of pupil-pupil talk and extended pupil talk except for the two items involving inquiry (Table 41). The rest of the factor suggests that these two items appear here because of the pupil talk component that enters inquiry, and because of the lack of drill activities. The factor does not discriminate between programs. Its correlations with pupil growth present a perplexing pattern. For 1969 first grade Abstract growth, it correlated significantly negatively at the one percent level. However, in 1970 for entering first grade it correlated positively at the five percent level with Skill growth and for nonentering first grade with Group Skill and Individual Abstract. These correlations were supported by correlations with all of the individual and total measures for the nonentering group. For two groups of pupils then, the measure appears to be positively related to Skill growth, but in a third group it is significantly negatively related to Abstract growth. It is possible that these are the occasional significant correlations which happen by chance, but this conclusion is hard to accept for several reasons. For the 1969 first grade data, Factor 4, extended teacher talk, relates positively with Abstract growth; and Factor 5, pupil talk, relates negatively to Abstract growth. In effect, the correlations, based on different factors, agree on teacher talk rather than pupil talk supporting Abstract growth. However, in the 1970 data, the correlations for

Table 40

Reciprocal Category System

Factor 4 - Teacher Amplification in Extended Talk

Item	Loading	Description
3	.74	Teacher amplifies
4	.45	Teacher elicits
5	.50	Teacher responds
23	.54	Teacher revised I/D
41	.75	Teacher amplify direct, percent
42	.66	Teacher extended question
44	.51	Steady-state teacher talk
49	.44	Average length of teacher initiation
12	-.42	Pupil initiates
27	-.41	Teacher broad question

Eigenvalue = 4.70

Table 41

Reciprocal Category System

Factor 5 - Pupil Talk

Item	Loading	Description
11	.49	Pupil responds
20	.83	Pupil-pupil talk
45	.93	Steady-state student talk
47	.63	Student talk
50	.90	Inquiry
51	.69	Inquiry-drill, percent
16	-.51	Teacher talk, percent

Eigenvalue = 4.77

Factor 5 argue against this interpretation where pupil talk relates strongly with all measures but Group Abstract. A possibility may be that an idiosyncrasy in the 1969 Abstract growth data could similarly affect both correlations there (the N was only 20 classrooms), but the correlation of 1970 Group Abstract does seem to differ from the others.

(6) Teacher Initiation with Pupil Interruption vs Teacher Question. This factor apparently represents extended teacher talk, much of which is initiation or lecture, but with pupils feeling free to break in (Table 42). The negative pole has teacher questioning as a common thread running through the three items. The factor discriminates between programs at the one percent level both years. It relates significantly to 1970 entering first Concrete growth, and correlates in the 40's with 1969 first grade Abstract growth, and with 1970 nonentering Group Abstract growth. Perhaps what the results for Factors 4, 5, & 6, may indicate is that there is a real relationship in the data which is obscured by the error associated with small numbers of cases and difficult to identify.

(7) Teacher Direction vs Pupil Initiation. The common thread that runs through the highest loadings for this factor is teacher direction, with an indication that the direction is given at some length and accompanied by criticism (Table 43). There is also evidence that the amount of teacher talk is high in general, and that it crosses a variety of categories. The negative pole of the factor indicates pupil initiation in two items and correction in a third.

The factor discriminates significantly between programs the second year, but does not relate to pupil growth.

(8) Supportive Pupil Talk. The factor is made up entirely of supportive pupil talk, with no teacher involvement (Table 44). Although the discrimination between programs is not significant, the multiple range test creates two homogeneous subgroups each year. It does not relate to pupil growth. It appears to be a measure

Table 42

Reciprocal Category System

Factor 6 - Teacher Initiation with Pupil Interruption vs Teacher Question

Item	Loading	Description
6	.95	Teacher initiates
18	.41	Pupil initiation
29	.72	Pupil substantive interruption
31	.73	Total pupil interruption
43	.84	Steady-state teacher initiation
44	.58	Steady-state teacher talk
56	.79	Teacher initiation, percent
26	-.41	Teacher narrow question
40	-.80	Teacher elicit-initiate, percent
48	-.44	Drill

Eigenvalue = 6.33

Table 43

Reciprocal Category System

Factor 7 - Teacher Direction vs Pupil Initiation

Item	Loading	Description
7	.75	Teacher directs
16	.62	Teacher talk, percent
22	.84	Teacher extended direct
34	.42	Teacher-teacher flexibility
44	.51	Steady-state teacher talk
46	.53	Teacher talk
53	.85	Teacher direction and criticism
59	.49	Total teacher talk (raw tallies) divided by number of batches
12	-.47	Pupil initiates
14	-.44	Pupil corrects
18	-.45	Pupil initiation, percent

Eigenvalue = 5.62

Table 44

Reciprocal Category System

Factor 8 - Supportive Pupil Talk

Item	Loading	Description
24	.85	Pupil positive participation, percent
25	.90	Pupil revised I/D_1
57	.65	Pupil warms, accepts, amplifies

Eigenvalue = 2.83

of interest in its own right, however, in the sense that a number of programs have among their objectives fostering supportive social behavior on the part of pupils. This factor appears to be a reasonable representation of such an objective in reflecting the extent to which pupils praise each other, and accept and expand on each other's ideas in the content of a task which is real to them.

The RCS is one of the instruments coded from tape. It does not appear to be as powerful an instrument, either in discriminating programs or in relating to pupil growth, as the instruments coded live in the classroom. Probably this is not so much due to the instrument itself, or coding from tape, as to the fact that less sustained interaction occurs with pupils at these age/grade levels than with older children. Although relatively strong correlations appear, they do not do so with consistency, so that the conclusions are uncertain. To some degree this is probably small sample variability, but the nature of the underlying relations remains unclear.

Cognitive Taxonomy (CogTax). For the Cognitive Taxonomy the first year factor structure was chosen for further analysis. As indicated in the Procedure section, the coding method differed from the first to the second year. The first year a tally was recorded every three seconds (category system), but each observation period was also scored zero or one as though the instrument had been coded sign system. Since that system appeared to be at least as effective in terms of both program discrimination and correlations with pupil growth, the coding the second year was done in traditional sign system fashion by coding each occurrence of each item only once in an observation period, regardless of the number of times it occurred. Details of program discrimination are reported in Appendix D, and summarized in Table 45; correlations with pupil growth are shown in Tables 46 and 47.

(1) Highly Focused Learning Tasks. The most heavily loading items in this factor seem to involve specific academic tasks: counting, arithmetic operations, comparing and copying letters and numbers. Lower loadings appear for classification and the sum of all the items at that level (Table 48).

The factor separated programs into two groups the first year (not significant) and three groups the second year (significant). It correlates significantly with the 1969 first grade concrete pupil growth and the 1970 nonentering first grade Individual and Total Skill Growth, with other supporting correlations.

The finding that this factor which focuses on skill oriented interaction relates to pupil Concrete and Skill learning, but not to Abstract, seems very reasonable.

(2) Narrow vs Broad Answer. The positive pole of the factor is made up primarily of level four behavior, application; the negative pole of level two, translation (Table 49). The level four item, "asks, tells who, what, where, etc." refers to a question such as, "What is a lid for?", and the pupil's response. In contrast, the question, "What was the boy doing?", referring to a picture, would be

Table 45

Cognitive Taxonomy
Multiple Range Tests of Program Discrimination

Factor	1969[1] Homo. Subsets	1969[1] F	1970[2] Homo. Subsets	1970[2] F
1 - Highly Focused Learning Tasks	2	1.60	3	3.98**
2 - Narrow vs Broad Answer	2	1.61	2	2.21*
3 - Moderately Focused Learning Tasks	2	2.13	2	3.15**
4 - Phonics	2	2.70*	2	2.21*
5 - Information Giving and Receiving	3	2.61*	1	.56
6 - Complex Thinking	1	.62	1	.59

[1] N = 70 *p < .05

[2] N = 65 **p < .01

Table 46

Correlation of Cognitive Taxonomy with Pupil Growth Scores

Factor	Kindergarten 1969 Abs.[1]	Kindergarten 1969 Conc.[2]	Kindergarten 1970[3] Abs.	Kindergarten 1970[3] Skill	Kindergarten 1970[3] Conc.	First Grade[4] 1969 Abs.	First Grade[4] 1969 Conc.	Entering First[5] 1970 Abs.	Entering First[5] 1970 Skill	Entering First[5] 1970 Conc.
1. Highly Focused Learning Tasks	.01	-.14	.27	.35	-.21	.25	.52*	.27	-.35	-.37
2. Broad vs Narrow Answer	.23	.19	.07	-.19	-.19	-.47*	-.10	-.04	.17	.41
3. Moderately Focused Learning Tasks	-.11	-.11	.21	.12	-.53*	.44*	.38	.54	-.22	-.43
4. Phonics	-.24	.08	.30	.28	-.06	-.05	.15	.50	-.42	-.03
5. Information Giving and Receiving	.00	-.09	.14	.01	-.11	.58*	.12	.49	.00	-.01
6. Complex Thinking	.03	-.06	.12	-.08	-.40	-.43	.13	.23	-.29	-.13

[1] N = 23 classrooms; p.05 = .41; p.01 = .53
[2] N = 33 classrooms; p.05 = .34; p.01 = .44
[3] N = 19 classrooms; p.05 = .46; p.01 = .58
[4] N = 20 classrooms; p.05 = .44; p.01 = .56
[5] N = 9 classrooms; p.05 = .67; p.01 = .80
*p < .05

Table 47

Correlation of Cognitive Taxonomy (1970)
with Nonentering First Grade Growth Scores[1]

Factor	Group			Individual			Total		
	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.	Skill	Conc.
1. Highly Focused Learning Tasks	.15	.53	.40	.48	.62*	.44	.39	.61*	.44
2. Broad vs Narrow Answer	.28	.26	.34	.47	.25	.18	.44	.26	.24
3. Moderately Focused Learning Tasks	-.20	.35	.21	.22	.53	.28	.07	.50	.26
4. Phonics	-.64	-.20	-.03	-.51	-.21	.06	-.60	-.21	.03
5. Information Giving and Receiving	-.60*	.05	-.19	-.27	.09	-.16	-.42	.08	-.17
6. Complex Thinking	-.06	.14	-.01	.31	.32	-.26	.19	29	-.17

[1] N = 12 classrooms; p.05 = .58; p.01 = .71
*p <.05

Table 48

Taxonomy of Cognitive Behavior

Factor 1 - Highly Focused Learning Tasks

Teacher Item	Teacher Loading	Teacher Level	Description	Pupil Loading	Pupil Item
14	.43	3	Classifies (1 attribute) and gives class name	.47	46
15	.74	3	Counts	.69	47
16	.71	3	Adds, subtracts; uses units, tens	.65	48
17	.72	3	Compares letters, numbers; copies letters, numbers (while learning)	.72	49
23	.50	3	Sum of interpretation	.54	55
			Median	.51	66

Eigenvalue = 5.67

Table 49

Taxonomy of Cognitive Behavior

Factor 2 - Broad vs Narrow Answer

Teacher Item	Teacher Loading	Teacher Level	Description	Pupil Loading	Pupil Item
		1	Choral response	.42	34
22	.49	3	Makes comparisons	.47	54
26	.67	4	Asks, tells who, what, where, etc.	.65	58
28	.66	4	Reads	.43	60
29	.70	4	Sum of application	.62	61
		2	Seeks information	-.56	36
9	-.76	2	Describes activity, picture, etc. Reports experience. Describes situation event.	-.76	41
11	-.52	2	Asks, gives permission	-.42	43
12	-.55	2	Sum of translation	-.64	44

Eigenvalue = 7.12

a level two question, and illustrative of the negative pole of the factor. Contrary to what might be expected, the level four activities seem to be more focused on subject-matter, whereas the level two activities seem more general, and would, for example include "show and tell".

The factor separated programs into two groups both years, with the F significant the second year. It related significantly negatively with 1969 first grade Abstract growth, but as strongly positively, although not significantly, with nonentering first grade 1970 Individual Abstract growth. The direction of the relationship the first year indicated that higher level activities in the classroom were detrimental to Abstract growth and simpler activities were supportive of this growth, but the opposite was indicated the second year. A possible resolution of this conflict is that the first grades for 1969 were primarily entering first grades. The pattern of correlations suggests that the complex classroom activities which were inimical to Abstract growth in 1969 were supportive of such growth among nonentering first grade pupils, and that their greater experience in school laid a background to permit this. But the shifting relationships may, of course, be due to small samples, a change in the pupil measures, or perhaps the change in the way tapes were coded.

(3) Moderately Focused Learning Tasks. This factor overlaps with Factor 1 in kinds of activities included (Table 50). It is task-oriented, but appears to be less specifically focused. Whereas Factor 1 was focused on tasks such as counting, arithmetic operations, and the comparison of letters and numbers, Factor 3 has its heaviest loadings for the identification of more general similarities and differences, the sum of level three activities (interpretation) and the median level of activity for the whole scale.

The factor separated programs into two subgroups each year, but the F's were not significant. The factor correlated negatively with both 1970 kindergarten Concrete (significant) and with 1970 entering first grade Concrete (above .40).

Table 50

Taxonomy of Cognitive Behavior

Factor 3 - Moderately Focused Learning Tasks

Teacher Item	Teacher Loading	Teacher Level	Description	Pupil Loading	Pupil Item
7	.52	2	Names pictures, objects, color, letter	.55	39
11	.46	2	Asks, gives permission		
12	.49	2	Sum of translation	.43	44
13	.55	3	Sounds out word	.54	45
14	.60	3	Classifies (1 attribute), gives class name (vehicle, etc.)	.61	46
18	.71	3	Identifies similarities, differences	.70	50
19	.61	3	Asks, gives reason	.64	51
21	.43	3	Performs learned task or process		
23	.79	3	Sum of interpretation	.75	55
65	.79		Teacher -- Median -- Pupil	.61	66

Eigenvalue = 8.37

Table 51

Taxonomy of Cognitive Behavior

Factor 4 - Phonics vs Classification

Teacher Item	Teacher Loading	Teacher Level	Description	Pupil Loading	Pupil Item
6	.65	2	Sounds letters	.75	38
13	.54	3	Sounds out word	.52	45
32	.41	7	Sum of evaluation		
24	-.46	4	Classification (2 attributes)	-.48	56

Eigenvalue = 4.20

It also correlated significantly positively with 1969 first grade Abstract, above .50 for 1970 entering first Abstract and nonentering first grade Individual Skill. In this case, then, an activity which is significantly positively correlated with Abstract growth is significantly negatively correlated with concrete growth with supporting non-significant correlations. The directions and sizes of the correlations are consistent across pupil groups. There is also a suggestion that a classroom process which supports Abstract growth for less educationally experienced children shifts to supporting Skill growth for more educationally experienced pupils.

(4) Phonics. The factor is a minimal one. Two items represent phonics work, and another the teacher evaluating or seeking evaluation, versus a minimal loading for classification on the other pole. (See Table 51).

The factor discriminates significantly between programs both years. For 1970 nonentering first grade pupils, it correlates significantly negatively with Group Abstract, and above .50 negative, for Individual Abstract. It also correlates above .50 positively but not significantly with entering first Abstract, which is troublesome. (This group has the smallest number of classrooms of any.)

(5) Information Giving and Receiving. This is a factor which appears to represent exchange of information between teacher and pupil and simple translation of language into behavior (Table 52).

It discriminates significantly between programs the first year but not the second. It correlates significantly with 1969 first grade Abstract and in the .40's with 1970 entering first Abstract; but significantly negatively with 1970 nonentering first grade Group Abstract. The direction of the two sets of correlations may mean that the lower cognitive level activities which support Abstract growth for first graders without previous school experience has become too simple and no longer fosters Abstract growth for first graders who have previous school experience. Even though these correlations are significant, other reversals raise continuing questions.

(6) Complex Thinking. The factor is concerned principally with the application of previous learning to a new situation including directing a learning game. Other items seem to support these activities (Table 53).

The factor does not discriminate programs either year, and the F suggests that variability within programs is at least as large as between programs. The factor does not correlate with pupil growth significantly nor in a consistent manner.

The data from this instrument and from the RCS which preceded it seem preplexing. The data from both of these instruments show parallel contradictions from pupil group to pupil group in whether low cognitive level or tightly structured classroom activities relate to a given kind of pupil growth. Similar kinds of contradictions appear from 1969 first grade data to 1970 nonentering first grade data. These are in contrast to the results from the two instruments used in live observation which followed expectation more consistently.

Table 52

Taxonomy of Cognitive Behavior

Factor 5 - Information Giving and Receiving

Teacher Item	Teacher Loading	Teacher Level	Description	Pupil Loading	Pupil Item
3	.80	1	Gives, receives information	.83	35
4	.77	1	Seeks information		
5	.84	1	Sum of memory	.54	37
8	.48	2	Gives, follows directions		
10	.48	2	Recognizes word (sight reads)	.46	42
11	.41	2	Asks, gives permission		
12	.40	2	Sum of translation		

Eigenvalue = 6.10

Table 53

Taxonomy of Cognitive Behavior

Factor 6 - Complex Thinking

Teacher Item	Teacher Loading	Teacher Level	Description	Pupil Loading	Pupil Item
27	.52	4	Applies previous learning to new situations	.69	59
29	.42	4	Sum of application	.64	61
30	.55	5	Sum of analysis	.49	62
		2	Gives, follows directions	.47	40
		4	Directs learning game	.45	57

Eigenvalue = 4.51

Relations of Ratings With Pupil Growth Measures. The relationships of ratings with the growth of various pupil groups are shown in Tables 54, 55 and 56. The relations taken as a whole are so inconsistent as to be of uncertain meaning. Several of the ratings seem to relate strongly for nonentering first grade pupils, but do not relate for the other groups. Teacher congruence, for example, relates relatively consistently, and in two cases significantly, with pupil growth for nonentering first, but does not relate at all for the other four groups. Reinforcement from adults relates fairly consistently with growth (although not significantly) for nonentering first and entering first, but not at all for the other three groups. Reinforcement from materials relates strongly and often significantly with growth for the nonentering first grade group, to a essentially zero for entering first, but negatively for 1970 kindergarten Concrete and not at all for the other two groups. Clear Cognitive Focus relates positively for at least some measures in the three 1970 groups, but not for the other two. This measure seems to relate with at least some measures in more groups than any other. For other measures, relationships appear to scatter sufficiently that conclusions are uncertain.

Relations involving 1970 nonentering first grade stand out as different, but it seems unlikely that the difference between those ratings and the 1970 kindergarten and entering first results can be attributed to observer differences, since the observers were spread across all three groups. Apparently, in this case as with the systematic observation data, the need is for more classrooms, so that the results can be held with some confidence.

Table 54

Correlations of Global Ratings with Pupil Growth - 1969

Rating	Kindergarten Abstract[1]	Kindergarten Concrete[2]	First Grade[3] Abstract	First Grade[3] Concrete
Proportion of Interested Pupils	.34	.11	.06	.17
Intensity of Interest	.28	.18	-.43	-.09
Pupil Groupings	.02	-.20	.06	.12
Pupil Differentiation	.08	.04	.21	.22
Teacher Congruence	-.01	-.02	-.15	.02
Teacher Empathy	.17	.13	-.17	.00
Pupil Reinforcement from Pupils	.08	.09	.04	.11
Pupil Reinforcement from Adults	.06	.09	-.32	.14
Pupil Reinforcement from Materials	.08	.15	-.01	.28
Pupil Self Control	.05	.05	.28	.11
Clear Cognitive Focus	.12	.20	-.26	.25
Game-like Cognitive Focus	.14	.23	.29	.23
Children's Original Art Work	.44*	.01	.25	-.14
Room Displays and Artifacts	.22	-.18	.27	.36
Overall Emotional - Attitudinal Climate	.40	.15	-.15	.27
Children's Happiness - Satisfaction	.38	.23	-.01	.13

[1]N=23 classrooms, p.05=.41

*p .05

[2]N=33 classrooms, p.05=.34

[3]N=20 classrooms, p.05=.44

Table 55

Correlations of Global Ratings with Pupil Growth - 1970

Rating	Kindergarten[1] Abs.	Skill	Conc.	Entering First[2] Abs.	Skill	Conc.
Pupil Groupings	-.44	-.24	-.24	.00	.21	-.45
Pupil Differentiation	.12	.35	-.07	-.40	.08	.43
Teacher Congruence	-.12	.03	-.22	.36	.11	-.12
Teacher Empathy	-.13	.02	-.03	.21	.26	.58
Pupil Reinforcement from Pupils	-.16	.02	.15	-.08	.23	.11
Pupil Reinforcement from Adults	.07	.24	-.11	.51	.42	.23
Pupil Reinforcement from Materials	-.21	-.17	-.42	.37	.00	.29
Pupil Self-Control	.02	-.16	-.02	-.04	-.14	.64
Pupil Freedom to Interact	-.42	-.17	-.18	-.15	.03	-.18
Clear Cognitive Focus	.51*	.25	.05	.01	-.07	.71*
Game-like Cognitive Focus	.11	.15	-.09	-.06	-.15	.38
Overall Emotional - Attitudinal Climate	.33	.23	.10	.04	.12	.33
Children Happiness - Satisfaction	.07	.09	.02	.00	.31	.47

[1] N= 19 classrooms, p.05=.46

[2] N= 9 classrooms, p.05=.67

*p .05

Table 56

Correlations of Global Ratings with Nonentering First Grade Pupil Growth (1970)[1]

Factor	Group			Individual			Total		
	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.	Skill	Conc.
Pupil Groupings	.12	.21	.30	.23	.24	.12	.21	.24	.18
Pupil Differentiation	.34	.39	.47	.29	.09	.55	.34	.15	.53
Teacher Congruence	-.03	.62*	.58*	.35	.49	.54	.24	.52	.56
Teacher Empathy	.05	.33	.32	.40	.32	.15	.30	.32	.21
Pupil Reinforcement from Pupils	.21	.08	.24	.07	.02	.17	.13	.03	.19
Pupil Reinforcement from Adults	-.45	.53	.38	.17	.56	.46	-.06	.57	.44
Pupil Reinforcement from Materials	.13	.82**	.74**	.56	.66*	.77**	.44	.70*	.77**
Pupil Self Control	-.00	.41	.04	.18	.28	.09	.13	.32	.08
Pupil Freedom to Interact	.09	.10	.28	.08	.12	.13	.09	.11	.18
Clear Cognitive Focus	-.06	.81**	.53	.52	.83**	.54	.34	.83**	.54
Game-like Cognitive Focus	.28	.36	.09	.53	.55	.08	.48	.52	.08
Over All Emotional - Attitudinal Climate	.25	.68*	.45	.45	.50	.45	.41	.54	.46
Children Happiness - Satisfaction	.30	.72**	.71**	.50	.55	.67*	.46	.60*	.70*

[1]N = 12 classrooms, p.05=.58; p.01=.71

*p <.05
**p <.01

Nonlinear Relations Between Observational Measures and Pupil Growth.

Earlier work had suggested that relations between classroom behavior measures and pupil growth measures were sometimes nonlinear, indicating that intermediate levels of some kinds of behavior were most functional for the growth of pupils (Soar, 1968). Further, this work had indicated that the level of a given classroom behavior which was most supportive of pupil growth varied with the nature (the complexity or abstractness) of the learning task. In line with this, curves were fitted to the relations between the Abstract and Concrete pupil growth measures and all of the classroom behavior measures for the 1969 first grade data. (First grade was selected because relationships seemed stronger there.) One of the findings from that analysis is presented here as illustrative of the kinds of relationships found, but numbers of others followed the same pattern. Table 57 presents the loadings for Factor 1 from the 1969 factor structure of the TPOR, and Figure 7 presents the curves. The deviations from linearity are not significant (N=20), but the curve for Complex-Abstract growth suggests that the true relation is not linear. Numbers of other curves support that hypothesis.

For the 1970 data, Figure 8 presents the relations between FLACCS Factor 6, Pupil Conforming Behavior (Table 24), and Abstract, Skill, and Concrete growth measures for the nonentering first grade. The suggestion of nonlinearity, although nonsignificant (N=12), again is present. Additional analyses of 1970 data are not reported, since nonlinear analyses are more subject to error due to small samples than linear analyses. These findings are not presented as more than suggestive, but further analyses will be carried out with additional data for 1971.

Table 57

Teacher Practices Observation Record (1969)

Factor 1 - Teacher Directed Activity vs. Pupil Selected Activity

Item	Loading	Description
1	.80	T occupies center of attention
3	.72	T makes some thing as a thing center of p's attention
5	.45	T has p spend time waiting, watching. listening
11	.70	T organizes learning around Q posed by T
13	.56	T prevents situation which causes p doubt or perplexity
19	.52	T asks Q that p can answer only if he studied the lesson
21	.84	T accepts only one answer as being correct
23	.73	T expects p to come up with answer T has in mind
25	.55	T expects p to "know" rather than to guess answer to Q
27	.42	T accepts only answers or suggestions closely related to topic.
31	.80	T collects and analyzes subject matter for p
33	.81	T provides p with detailed facts and information
35	.81	T relies heavily on textbook as source of information
45	.73	T immediately reinforces p's answer as "right" or "wrong"
51	.52	T has all p working at same task at same time
53	.49	T holds all p responsible for certain material to be learned
55	.49	T evaluates work of all p by a set standard
57	.63	T motivates p with privileges, prizes, grades
59	.66	T approaches subject matter in direct, business-like way
4	-.50	T makes doing something center of p's attention.
6	-.40	T has p participate actively.
12	-.73	T organizes learning around p's own problem or Q
32	-.72	T has p make his own collection and analysis of subject matter
36	-.53	T makes a wide range of information material available
44	-.44	T encourages p to put his ideas to a test
54	-.71	T has p work independently on what concerns p
60	-.68	T approaches subject matter in indirect, informal way

Eigenvalue = 12.81

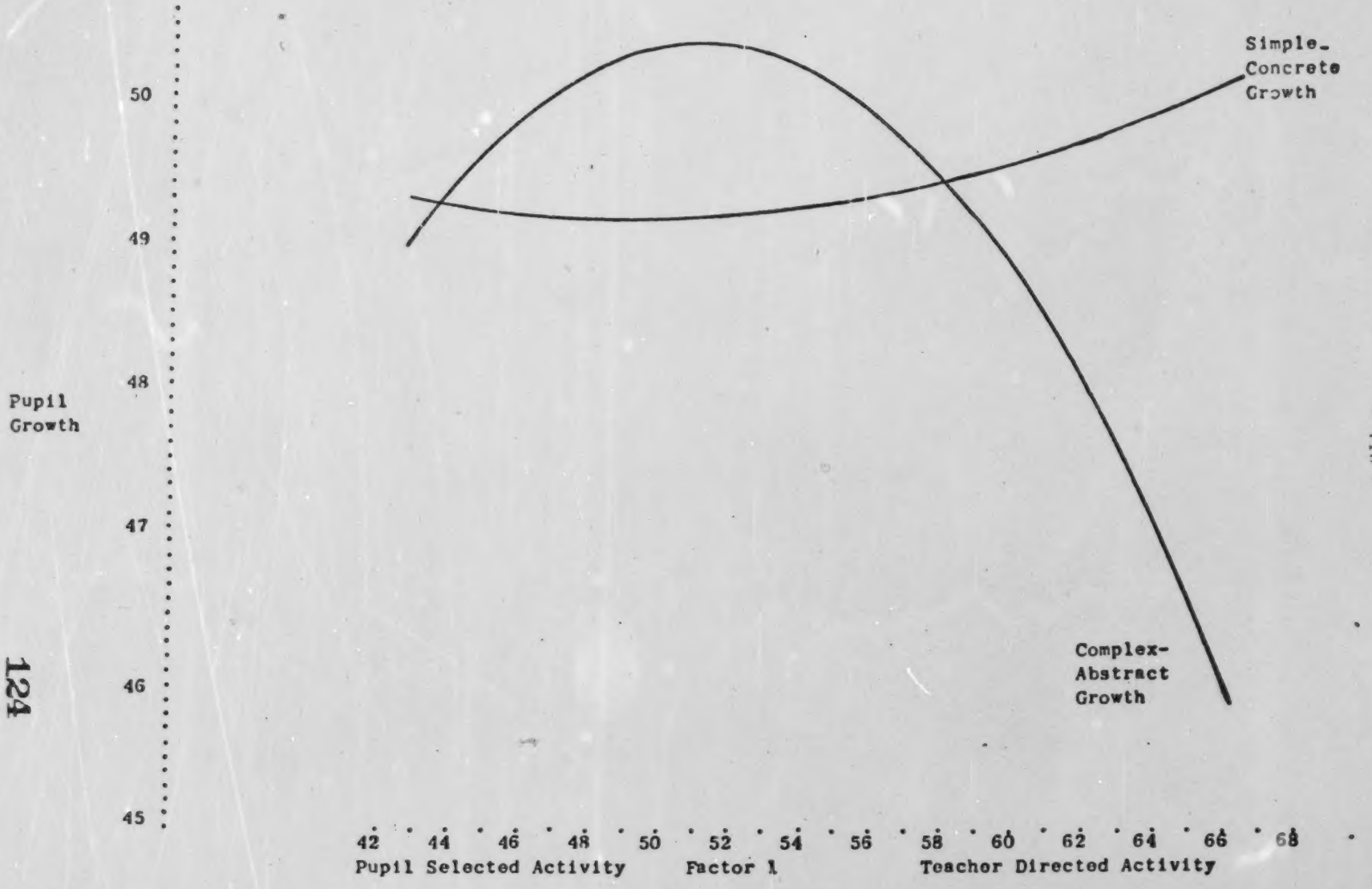

Figure 7 - Relation Between Teacher Practices Observation Record Factor 1 and Pupil Growth.

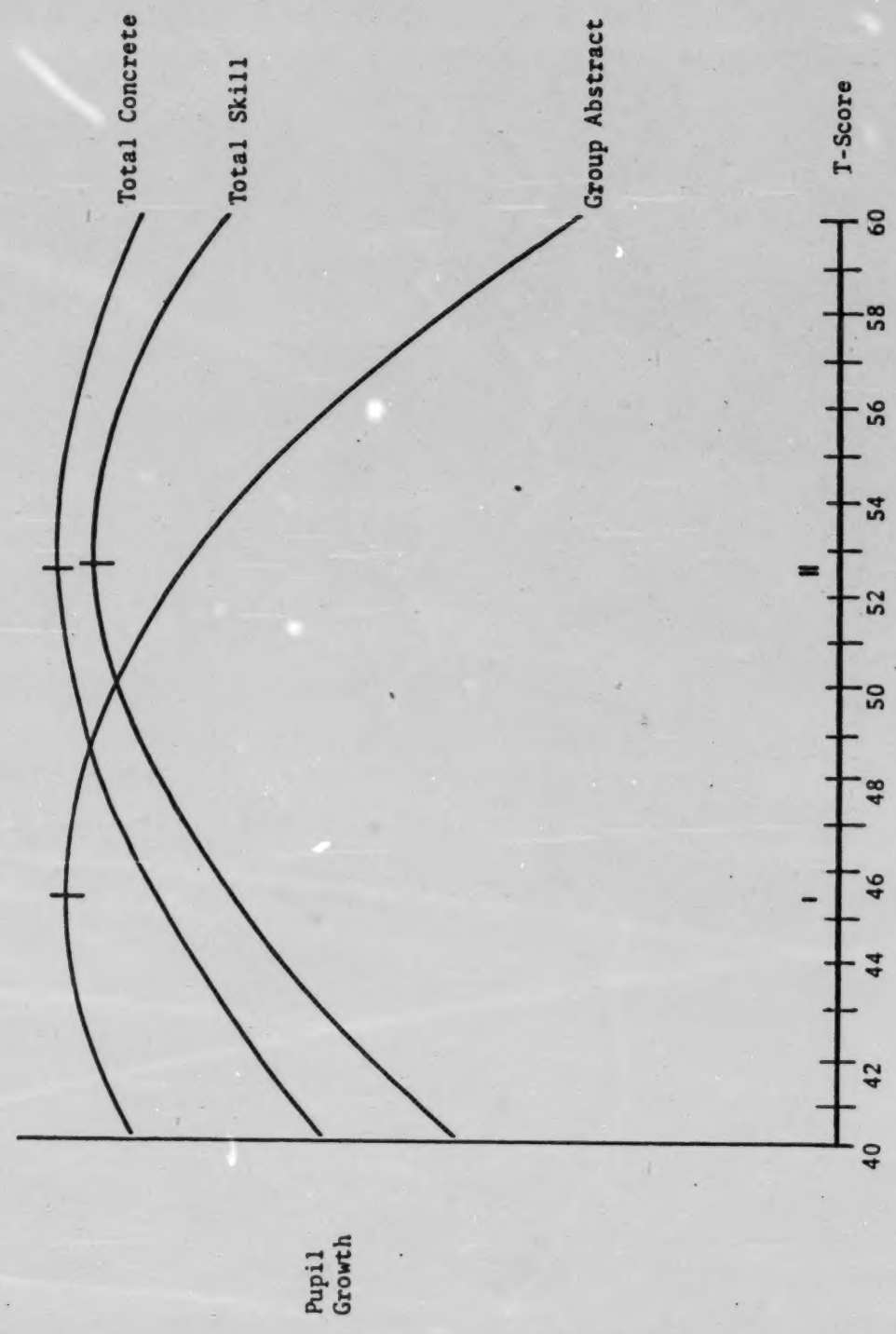

Figure 8 - Florida Climate and Control System. Factor 6 Related to Nonentering First Grade Growth.

If, however, the relations of some of the behavior measures to pupil growth are nonlinear, the correlations reported here will be underestimated. Further, where the relationships are shaped like inverted "U's", as some seem to be, the magnitude, and even the sign of a product-moment correlation may be changed with a change in the average level of the classroom behavior for different subgroups being analysed. For some measures, it is not unusual to find a change of a standard deviation or more in mean level of behavior between entering first grade, and nonentering first grade, for instance. It seems possible, then, that some portion of the variability of correlations observed may be due to different segments of a curve being represented, as well as by small sample variability.

Discussion

Program Discrimination

One of the goals of this project was to describe differences among the programs in terms of observed classroom behavior. The analyses of variance for observational data show that highly significant differences in classroom behavior are associated with differences in sponsorship. A major dimension of programs which runs through three different instruments over two years of data collection with considerable consistency separates programs so widely that there is no overlap between programs at the extremes. Numbers of dimensions which are less clearly related to sponsor objectives as we understand them also discriminate, although less sharply. And of course, some factors show no differences, but they are typically dimensions which seem to be unrelated to sponsor objectives.

There appear to be differences in the degree to which sponsors have been successful in implementing their objectives, and it seems probable that stresses in communities, which are reflected in the schools, have negated the sponsors

efforts in some cases. It also seems likely that programs differ in the difficulty of implementation. Nevertheless, the success of sponsors in producing classrooms which reflect their objectives as they are measured here seems striking.

Pupil Growth Data

Although not an objective anticipated as part of this project, reduction of pupil achievement data to a small set of more homogeneous measures became a necessary first step in preparation for studying the relations between classroom behavior measures and pupil growth.

Probably the most important finding is that the total battery can be broken down into largely independent subscores which represent rather different kinds of learning. What has been called Simple-Concrete learning seems to require little but memory; Skill represents the acquisition of the traditional academic skills, reading, spelling and arithmetic; Complex-Abstract learning seems to require more complex information processing -- solving complex problems, comparing complex figures, the possession of abstract information. Not only do these different classes of scores not relate strongly with each other, but they seem to respond differently to the dimensions of classroom behavior and to different programs. For example, when the pupils in several programs are examined across the three kinds of measures, one program goes from the lowest standing to the highest standing.

The finding of relatively independent classes of measures seems especially important since the total battery is more heavily weighted with items that represent the Skill measure, so that a sum for the total battery would favor programs which emphasize teaching skills. In contrast, the Abstract measures which would seem to be closer to the objectives of the inquiry-oriented programs are represented by a small number of items which would easily be overwhelmed in the total

battery.

Beyond the issue of program evaluation, when these measures differing in nature are used to examine the growth of pupil subgroups differing in ethnic group and socio-economic status, the minor differences in growth in either Concrete or Abstract measures are so inconsistent as to lead one to conclude that there is no real difference. Subgroups start at different levels and finish at different levels, but grow at very similar rates for both Abstract and Concrete pupil measures. This seems a very hopeful finding for a compensatory education program.

Relations Between Observational Data and Pupil Growth

In contrast to the use of observational data in program discrimination, the relations of the observational measures to measures of pupil growth are scattered and often inconsistent. Several problems contribute to difficulty in drawing dependable conclusions. Growth is the problem being studied, but growth measures are much less reliable, and correlate much less strongly with each other and with other measures, than scores which represent standing at a point in time. Thorndike (1966) estimates that the correlation of a child's standing at the beginning of the year with his growth during the year is probably no more than +.10. In contrast, correlations between standings for elementary pupils commonly approach +.70. In these data, growth measures have been pooled, classroom by classroom, so that reliabilities have been increased, but to judge from other studies, high correlations are not to be expected.

The small number of classrooms in each group presented another problem -- the largest number of first grades is 20, which requires a correlation of .44 to be significant. Numbers range downward to 9 which requires a correlation of .67 to be significant. It seems likely, then, that significant correlations will be found only for real relationships which are augmented by chance variation which happens

to fall in the direction of increasing the correlation. Many real relationships, then, will be obscured by the overlay of chance correlations associated with small samples. (Kindergartens have a slightly larger number of classrooms, but only rarely correlate significantly with any measure, the number of significant correlations being reasonably attributable to chance.)

Against this backdrop of uncertainty, a few relationships will be cited which are identified by several significant correlations, supported by large but nonsignificant ones.

Complex-Abstract growth appears to be fostered by several measures which theoretically complement each other. Experimental Teaching in the Deweyan sense appears to be such a measure -- pupils are confronted by difficult problems, encouraged to hypothesize and examine alternatives, but required to evaluate the alternatives they have suggested (TPOR 2). Another is Intrinsic Motivation (TPOR 5), reflecting the involvement of the pupil in the ideas and the activities themselves, rather than being motivated by teacher direction and evaluation. Additional support seems to come from teaching which is not narrowly focused on subject matter but is involved with the broader experience of the child and perhaps with his world out of school (CogTax 3). The measure which seems to be most strongly supportive of Abstract growth is so brief as to be enigmatic, but appears to reflect effective personal communication between teacher and pupils in which pupils appear to feel the teacher's involvement with them (FLACCS 7). In contrast, one measure appears to inhibit Complex-Abstract growth: a measure in which the teacher occasionally exercises very close control over pupils in an otherwise little structured setting (FLAC 6). It is not clear, however, whether it is the close control or the inconsistent teacher behavior, or both, which have their effect. All in all, this seems a reasonably coherent pattern of classroom behaviors, and one which it seems reasonable to find related to Abstract growth.

Pupil growth in Skill appears to be related to a number of the same classroom behaviors cited for Abstract growth. Intrinsic motivation (TPOR 5), Effective Personal Communication (FLACCS 7), and Moderately Focused (partly non-school related) Teaching (CogTax 3) all appear to support the growth of skill. However, it is not supported by the Experimental Teaching (TPOR 2) which supported Abstract growth.

Fewer measures appear to relate to Simple-Concrete growth. Teaching which is very specifically focused on lower level academic skills promotes Concrete growth (CogTax 1), but more broadly focused teaching (CogTax 3) appears to inhibit it. Effective Personal Communication (FLACCS 7) supports it, but extreme freedom of action of pupils in the classroom (FLAC 5) also appears to inhibit it.

There appears to be a kind of general trend which runs through these relationships which suggests that pupil Abstract growth tends to be supported by less controlled, less focused classroom activities than support Skill growth, and that Concrete growth is supported by still more specific teacher activities. Given the small samples, and the inconsistencies of the data, however, this is to a degree tentative.

A somewhat surprising result is the failure of variables reflecting negative emotional climate to relate to measures of pupil growth. In contrast, two factors which reflect positive involvement of the teacher with pupils related to growth; one was a very powerful correlate and the other approached significance. A possible explanation for the difference in pupil response may be that disadvantaged children live with negative affect so commonly that it ceases to have much impact. If so, it would be reasonable to find positive affect variables having impact, as a kind of contrast effect.

In looking at the measures as a group and their relations with pupil growth, it is interesting to note that factors which discriminate programs most strongly,

and which represent major portions of the variance in the observational data, are not ones which relate strongly to pupil growth. The extent to which these factors discriminate programs implies that they represent an important dimension along which programs differ -- perhaps a dimension whose poles are represented in contemporary educational thought by the advocacy of programmed instruction on the one hand, and "open" classrooms on the other.

A problem in the analyses of these data which may explain the lack of relation just cited as well as the lack of significant results in general, may be the tendency for these relationships to be nonlinear. An examination of the first year data suggests that measures of teacher control and pupil freedom relate in nonlinear fashion to pupil growth. The numbers of classrooms within any grade level group were too small to permit a reasonable test of the hypothesis, but several bits of data point to this possibility.

In summary, observation methods appear to be significant discriminators of at least some program objectives, but the relations between observational data and pupil growth are less clear perhaps as a consequence of smaller samples of pupil data and the possibility of nonlinear relations. The Complex-Abstract, Skill and Simple-Concrete subgroups of pupil growth measures which were created appeared to relate to program differences and observational measures in meaningful ways.

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Appendix A

Equipment for Classroom Tape Recording

The final procedure involved the use of a moderately priced tape recorder and a Cardiod microphone (so-called because a graph of its sensitivity is somewhat heart-shaped). This class of microphones is broadly sensitive to the front, but sensitivity declines sharply to the rear, with the instrument almost completely insensitive directly to the rear. In use the microphone was not so much directed at the sound to be recorded, but away from competing sounds. In addition, these professional microphones are materially more sensitive than those furnished with tape recorders.

A further increase in recording quality was gained from the use of "high-output" tape which is more sensitive to faint signals.

The choice of batteries for the tape recorder also was an important factor. Full voltage is necessary to obtain the best possible recording. Zinc-acid batteries (ordinary flashlight batteries) begin to decline in voltage after a few minutes' use and decline steadily. GE rechargeable batteries produce only 1.3 volts instead of 1.5 at full charge, so that a set of five batteries in series produces a voltage a full volt below nominal value. Mallory batteries and chargers were selected because they produce full voltage which is sustained for extended periods of time.

A final change was the provision of moderate quality earphones. Stereo earphones, rewired to function monaurally, were found to increase intelligibility over use of the speaker in the recorder, or earphones intended for transcription.

The result of the various changes was that, in general, anything that a live observer could hear and understand in the classroom became codeable from tape.

Appendix B

Statistical Procedures Used in Calculating Pupil Gain Measures

Status vs Gain

In assessing pupil growth, it seemed important to use a measure of gain rather than a measure of standing at the end of the year. Gain measures are more sensitive reflections of change than status measures, since the individual is being compared with himself and his earlier status. Raw gain (the difference between post-test and pre-test) however, is generally an undesirable way to reflect change, because of regression effect. The concept of regression effect is that if two measures are less than totally reliable, a person who scores low on the first test will tend to score somewhat higher on the second; and a person who scores high on the first test will tend to score lower on the second, assuming no real change from one test to the other. A parallel statement is that a spurious negative correlation can be expected between the pre-test score and the difference from pre- to post-score. When a period of time intervenes between pre- and post-test and growth occurs, the effect is less obvious but the spurious negative correlation can be expected to remain. Its effect will be to increase the apparent growth of initially low scoring pupils, and to decrease the apparent growth of initially high scoring pupils. As a matter of fact, in the first grade sample of data analyzed the first year, the median correlation between pre-test score and raw gain was -.61 across the 13 subtests of the Metropolitan Readiness Test, the Early Childhood Inventory, and the Caldwell Soule. Since this negative correlation is a measurement artifact and clouds relations of these measures with others, it seems desirable to remove it.

Regressed Gain

Regressed gain is a way of adjusting out regression effect. Its effect

is to adjust out that portion of gain which is associated with pre-test score, thus eliminating the spurious relationship. In the course of this adjustment, the gains of initially low-scoring pupils are decreased, and the gains of initially high-scoring pupils are increased. This adjustment, however, raises other difficulties in turn. A regression effect takes place toward the mean of the population of which a given pupil is a member. The further away he is from the mean of that population, the greater is the adjustment which is made. The problem, then, is that if members of two populations which differ in mean score are combined in an overall analysis, the gains of the members of the lower standing population will be reduced more than they should be, and the gains of the members of the high-scoring population will be increased more than they should be. The usual solution to this problem, of course, is to carry out a separate analysis for each population.

In the first year's data, this could not be done because demographic data were available on too few pupils, so regressed gain was calculated separately for the total kindergarten group and the total first grade group. Within the second year data, four subpopulations appeared to warrant separate analysis, identified by ethnic group (white and black), and by social status (defined by the report of whether the pupil was entitled to full Follow Through services). The difficulty, however, was that a different test battery had been administered to kindergarten pupils, and entering first grade pupils (those without previous Follow Through kindergarten experience), from that administered to nonentering first grade pupils (those with previous kindergarten experience). When these three subgroups were each divided into four subgroups, the numbers of cases became too small for separate analysis -- as small as an N of three in one case.

A different alternative seemed reasonable if mean gain for each subgroup

appeared to be similar to that of the other subgroups within a grade level grouping. If mean gain from pre- to post- is similar for two groups, and if variabilities are similar, then the regression of post-score on pre-score may reasonably be assumed to be the same, and the groups can be combined if the differences in initial standing can be eliminated. This was the approach that was followed. Inspection of the pre-post means across the various measures did not show consistent differences from subgroup to subgroup in amount of gain (see Table 4). Differences in the levels of the regression lines were adjusted out for each item or subtest in the following way. If, for example, the low social status white group stood three points lower than the high social status white group in pre-test mean, then three points was added to each pre- and post-test score in the white low social status group. In this way, the amount of change from pre- to post- was left unchanged, but the level of the regression line was shifted. Similar adjustments were made on all groups, so that the four regression lines should, in effect, become a common one. Regressed gain was then calculated for the combined group, within each grade level group.

Factor Analysis of Gain Scores vs Status Scores

Analysis of the subtest scores from the first year's data indicated that the factor structure of regressed gain scores was appreciably different from that of either pre- or post-scores. It was only in the analysis of regressed gain scores that the simple-complex structure emerged clearly. If one is interested in gain, he should analyze gain. As Bereiter (1963) has indicated, items which are selected to measure standing at some point in time are likely to be items which are quite stable, and consequently not good measures of change. It seems possible, then, that the factor analyses of regressed gain measures in the first year's data may have been identifying measures which were more sensitive to change than those which failed to load.

These several considerations led to the assumption that the analysis of items and subtests to create new pools in the second year's data paralleling the first year factors should be done using measures of change. The difficulty with this procedure, however, was the cumulative loss of reliability from change measures being much less reliable than the status measures from which they are derived, and items being less reliable than subtests.

In one sense, the use of the term "items" is inappropriate in that a number of items on the WRAT (for instance, Word Reading, N = 20) have as long or longer scales than subtests of the Metropolitan (Word Meaning, N = 7). But there were items with one and two point scales.

Before items were factor analyzed, those which "topped out" or had very low variability were eliminated. Despite the problems of measures with varying scale length occurring in the same analysis and the reliability problems cited earlier, reasonably clear structures were obtained from factor analyses of the kindergarten and entering first grade, analyzed separately. In addition to the simple and complex factors found the first year, a third factor emerged which was unexpected. It appeared to represent skills-learning such as reading, spelling, and arithmetic (the three R's!). It was apparently associated with the addition of the Wide Range Achievement Test (WRAT), which is heavily weighted with these skills. Incomplete factor scores from these analyses were used as the measures of pupil regressed gain.

For the nonentering first grade data, items and subtests which appeared to be abstract came together with a series of low-variance items which appeared to measure simpler kinds of learning. Inspection of the data also suggested a tendency for items to be grouped on the basis of whether they were individually or group administered. Various combinations of items and subtests were combined and factor analyzed, but no really satisfactory structure emerged. Instead, on the basis of

the factor analysis and also a priori judgment, composites of items and subtests were formed to represent group and individually administered, simple-concrete, skill, and complex-abstract measures. An item analysis of all items against these composites was carried out, and items added to the composite accordingly.

Appendix C

Table C-1

Pupil Data Status - 1970 Sample

	Kindergarten	First Grade Entering	First Grade Nonentering	Total
Classrooms Observed	30	15	25	70
Classrooms Missing Pre or Post Data	10	6	13	29
Classrooms Missing Demographic Data	1	0	0	1
Classrooms Used in Pupil Analyses	19	9	12	40

Appendix D

Appendix D

Program Descriptive Data

Pupil Growth Data

Pupil growth data are not reported for the programs observed the first year. Demographic data were available for only a small fraction of the pupils on whom test data were obtained, and the estimation of regressed gain was carried out for the total group. Since this calculation for different groups combined creates a bias which is different for higher and lower standing subgroups (see Appendix B), and since programs differ in the ethnic compositions of the pupils served, comparisons would not have been meaningful.

In the 1970 data, demographic data were available on most pupils for whom test scores were obtained, so that regressed gain could be estimated with the effect of economic status and ethnic group adjusted out. Although program comparisons are reported for the 1970 data, the numbers of classrooms involved are too small for meaningful comparisons of programs. The data are reported only for the light shed on the sensitivity of the different pupil gain measures to different program objectives. The changes in standing for the same groups of pupils on the different measures suggest that different aspects of pupil growth are being measured. The means reported are deviations around the grand mean of regressed gain for all pupils.

The data for kindergarten growth scores are shown in Table D-1. The BE program stands high for Complex-Abstract growth, stands high along with the Nimnicht program for Skill growth, but the Comparison group stands high for Simple-Concrete growth.

In the entering first grade data (Table D-2), the only significant

Table D-1

Multiple Range Tests - Kindergarten Growth Scores (1970)

Complex-Abstract					Skill				
Sponsor	Mean	NSR*	S.D.	N[1]	Sponsor	Mean	NSR*	S.D.	N
BE	50.70		.07	3	BE	50.51		.09	3
Nimnicht	50.07		.31	4	Nimnicht	50.21		.32	4
Comp.	49.91		.76	3	Comp.	49.82		.16	3
EDC	49.83		.13	2	Gotkin	49.80		.10	4
Gotkin	49.80		.22	4	Bank St.	49.79		.06	2
Bank St.	49.42		.16	2	EDC	49.69		.01	2
F = 3.46 N.S.					F = 8.81 N.S.				

Simple-Concrete				
Sponsor	Mean	NSR*	S.D.	N
Comp.	50.77		.31	3
EDC	50.38		.34	2
Nimnicht	50.24		.61	4
BE	50.11		.35	3
Gotkin	49.51		.61	4
Bank St.	49.47		.51	2
F = 2.98 N.S.				

*Nonsignificant ranges.

[1]N is the number of classrooms. One program with only one classroom is omitted.

Table D-2

Multiple Range Tests - Entering First Grade Growth Scores (1970)

Complex-Abstract

Sponsor	Mean	NSR*	S.D.	N[1]
Bank St.	50.14		.15	3
Comp.	49.95		.01	2
EDC	49.93		.02	2
Tucson	49.88		.18	2

F = 2.30 N.S.

Skill

Sponsor	Mean	NSR*	S.D.	N
Bank St.	50.25		.21	3
EDC	50.06		.31	2
Comp.	49.79		.35	2
Tucson	49.68		.41	2

F = 1.71 N.S.

Simple-Concrete

Sponsor	Mean	NSR*	S.D.	N
Tucson	50.33		.16	2
Comp.	50.12		.34	2
Bank St.	49.96		.08	3
EDC	49.76		.04	2

F = 3.95 N.S.

*Nonsignificant ranges.

[1]N is the number of classrooms.

separation is for Simple-Concrete measure in which Tucson pupils show significantly more growth than EDC pupils. Program orders change from measure to measure, but no other differences are significant.

In the nonentering first grade data (Tables D-3, D-4, and D-5), the measures are broken into Group Administered, Individually Administered, and Total, in addition to the levels of abstraction which were used in the first two groups. The BE program stands highest on all three of the skill scores, in each instance differing significantly from the lowest standing program. But on the Group Complex-Abstract measure, the BE program stands lowest, and significantly different from the PE program which stands highest. Again, the only conclusions which are appropriate have to do with the differential characteristics of the measures, not the relative standings of programs.

The data do appear to point to the usefulness of measures such as these for representing differences in program objectives in program evaluation.

Table D-3

Multiple Range Test - Nonentering First Grade Growth Scores (1970)

Group Administered

Complex-Abstract					Skill				
Sponsor	Mean	NSR*	S.D.	N[1]	Sponsor	Mean	NSR*	S.D.	N
PE	50.72		0.32	3	BE	50.35		0.91	2
Nimnicht	50.08		0.06	2	Nimnicht	50.26		0.88	2
Tucson	50.06		0.33	3	PE	50.22		1.63	3
BE	49.34		1.20	2	Tucson	49.67		1.03	3
F = 2.48 N.S.					F = 4.27 N.S.				

Simple-Concrete				
Sponsor	Mean	NSR*	S.D.	N
PE	50.27		0.33	3
BE	50.10		0.87	2
Nimnicht	50.03		1.29	2
Tucson	49.82		1.02	3
F = 1.15 N.S.				

*Nonsignificant ranges.

[1]N is the number of classrooms. Two programs with one classroom each are omitted.

Table D-4

Multiple Range Test - Nonentering First Grade Growth Scores (1970)

Individually Administered

Complex-Abstract				
Sponsor	Mean	NSR*	S.D.	N[1]
PE	50.24		1.76	3
Nimnicht	50.13		0.25	2
BE	50.00		1.09	2
Tucson	49.83		0.27	3

F = 1.75 N.S.

Skill				
Sponsor	Mean	NSR*	S.D.	N
BE	50.66		4.90	2
Nimnicht	50.65		0.35	2
PE	50.26		7.65	3
Tucson	49.07		2.43	3

F = 4.71 N.S.

Simple-Concrete				
Sponsor	Mean	NSR*	S.D.	N
BE	50.46		2.16	2
PE	50.39		0.40	3
Nimnicht	50.01		2.59	2
Tucson	49.72		1.14	3

F = 1.19 N.S.

*Nonsignificant ranges.

[1]N is the number of classrooms. Two programs with one classroom each are omitted.

Table D-5

Multiple Range Test - Nonentering First Grade Growth Scores (1970)

Total

Complex-Abstract					Skill				
Sponsor	Mean	NSR*	S.D.	N[1]	Sponsor	Mean	NSR*	S.D.	N
PE	50.32		2.08	3	BE	50.56		5.81	2
Nimnicht	50.12		0.32	2	Nimnicht	50.51		0.53	2
BE	49.89		2.29	2	PE	50.24		9.28	3
Tucson	49.87		0.14	3	Tucson	49.28		3.46	3
F = 1.92 N.S.					F = 4.73 N.S.				

Simple-Concrete				
Sponsor	Mean	NSR*	S.D.	N
PE	50.33		0.16	3
BE	50.28		3.03	2
Nimnicht	50.02		3.88	2
Tucson	49.77		2.16	3
F = 1.18 N. S.				

*Nonsignificant ranges.

[1]N is the number of classrooms. Two programs with one classroom each are omitted.

Classroom Observation Data

In comparing classroom observation data from the first year to the second, several considerations seem important. First, more than half of the teachers in the sample the first year were replaced the second year. Replacement ranged from none for one program to complete replacement for another (see Table 2). A number of teachers changed their teaching style in major ways from the first to the second year, as seems reasonable to expect as programs mature. In addition, evidence of cross-fertilization and drawing together of programs seemed clear on occasion -- the presence of Gotkin materials in other program classrooms, for example. But, in contrast, in some urban areas, local problems contributed to tensions in the school which were reflected in the classroom.

Despite these various influences, a considerable degree of similarity can be seen in the order of programs from one year to the next.

Teacher Practices Observation Record

Factor 1 - Pupil Free Choice vs Teacher Structured Activity - In the first year's data, EDC classrooms were separated from all others as showing greater amounts of pupil choice of activity; in the second year's data, Nimnicht classrooms joined EDC classrooms in separating from other programs (see Table D-6). Freedom of choice appears to be central to the EDC program as it is described, and these data appear to agree. Probably the high standing of the Nimnicht program relates to the fact that pupils spend a considerable portion of the day working with various kinds of audio-visual equipment of their own choice.

In both years, Becker-Engelmann classrooms are identified as those in which most teacher structuring takes place. The emphasis on skill development through the use of programmed materials would seem to require that BE classrooms be rather highly structured with little pupil freedom of choice.

Table D-6

Multiple Range Test - Teacher Practices Observation Record

Factor 1 - Pupil Free Choice vs Teacher Structured Activity

1969					1970				
Sponsor	Mean	NSR*	S.D.	N	Sponsor	Mean	NSR*	S.D.	N
EDC	59.56		5.41	8	Nimnicht	58.49		5.45	8
Nimnicht	53.36		3.49	8	EDC	57.30		6.61	8
Bank St.	51.29		6.77	8	Tucson	51.90		4.20	8
Gotkin	51.02		3.60	8	Bank St.	50.01		5.83	8
Tucson	50.53		6.20	8	PE	48.75		6.06	8
PE	49.96		3.92	8	Gotkin	48.66		4.60	8
Comp.	45.95		5.15	14	Comp.	46.10		4.38	14
BE	41.38		3.38	8	BE	43.65		3.34	8

F = 9.83 $p < .01$ F = 8.76 $p < .01$

*Nonsignificant ranges.

Table D-7

Multiple Range Test - Teacher Practices Observation Record

Factor 2 - Experimental Teaching

1969					1970				
Sponsor	Mean	NSR*	S.D.	N	Sponsor	Mean	NSR*	S.D.	N
EDC	54.15		2.48	8	Nimnicht	55.05		5.43	8
Bank St.	51.29		4.63	8	PE	52.84		3.97	8
PE	51.05		4.08	8	Tucson	51.79		7.77	8
Tucson	50.95		3.76	8	EDC	51.38		6.03	8
Nimnicht	49.67		1.96	8	Bank St.	50.38		6.59	8
Gotkin	49.43		2.32	8	Comp.	48.86		5.36	14
BE	48.02		1.78	8	Gotkin	48.78		4.08	8
Comp.	47.39		3.10	14	BE	45.28		2.45	8

F = 4.25 $p < .01$ F = 2.46 $p < .05$

*Nonsignificant ranges.

This factor appears to be a major dimension along which programs differ, but it does not relate to pupil growth.

Factor 2 - Experimental Teaching - The order of programs differed somewhat from the first to the second year's data (Table D-7). In the first year's data, the EDC program stood highest on the factor with Bank Street, PE, and Tucson; with Comparison, Becker-Engelmann, Gotkin and Nimnicht classrooms in a lower grouping. In the second year's data, the Nimnicht program moved from the lower group to the upper group, and Bank Street became the program common to both groups. The shift of the Nimnicht program may partially reflect the replacement of seven of eight teachers from the first to the second year's sample. Teacher variability within program is high in comparison to differences between means.

Factor 3 - Less vs More Differentiation - With the exception of the Becker-Engelmann program, programs go in roughly the same order in both years' data (see Table D-8). Ignoring it for the moment, Comparison groups are at the end of the scale showing less differentiation of activities, with EDC, Tucson, and Nimnicht at the other end of the scale. Becker-Engelmann classrooms reversed position from least differentiation in the first year's data to most differentiation in the second year's data. This change took place as a consequence of an observer ground rule change. In the first year's data, observers tallied only what they could see or hear, but since subgroups sometimes went to different rooms (where only this subgroup was present), such a group was tallied as undifferentiated. In the second year's data, however, a subgroup was tallied as differentiated if the observers knew that other subgroups from that classroom were engaged in other activities, regardless of the fact that these behaviors were not observable.

Factor 4 - Nonexperimental Teaching - This factor discriminated between

Table D-8

Multiple Range Test - Teacher Practices Observation Record

Factor 3 - Less vs More Differentiation

1969					1970				
Sponsor	Mean	NSR*	S.D.	N	Sponsor	Mean	NSR*	S.D.	N
BE	55.45		5.30	8	Comp.	55.97		7.11	14
Comp.	53.90		5.50	14	Gotkin	54.60		5.66	8
Gotkin	51.95		3.54	8	Bank St.	49.33		6.39	8
Bank St.	51.75		4.75	8	PE	49.00		4.84	8
PE	49.38		3.04	8	Tucson	47.83		6.55	8
EDC	45.93		6.20	8	Nimnicht	47.63		4.13	8
Nimnicht	45.08		5.34	8	BE	47.13		5.19	8
Tucson	44.65		4.88	8	EDC	45.95		3.23	8

F = 5.67 < p .01 F = 4.21 p < .01

*Nonsignificant ranges.

Table D-9

Multiple Range Test - Teacher Practices Observation Record

Factor 4 - Nonexperimental Teaching

1969					1970				
Sponsor	Mean	NSR*	S.D.	N	Sponsor	Mean	NSR*	S.D.	M
BE	58.29		3.70	8	BE	57.28		4.71	8
Comp.	51.51		4.80	14	Comp.	53.98		5.88	14
Bank St.	49.78		2.78	8	Bank St.	53.75		6.65	8
PE	49.69		2.89	8	Gotkin	50.70		4.07	8
Nimnicht	47.98		3.83	8	Tucson	48.24		3.32	8
Gotkin	47.37		2.93	8	PE	46.65		2.81	8
EDC	47.22		2.27	8	EDC	45.53		3.96	8
Tucson	47.02		2.07	8	Nimnicht	44.03		3.13	8

F = 9.66 p < .01 F = 8.67 p < .01

*Nonsignificant ranges.

programs significantly in both year's data (Table D-9). Becker-Engelmann classrooms stand high, alone in the first year's data, and together with Comparison and Bank Street classrooms in the second. The high standing for BE seems to represent the objectives of the program. The lower end of the factor shows considerable variability in order, except for EDC which retains a position toward the lower end both years. This seems to agree with objectives as well.

Factor 5 - Intrinsic Motivation in a Task Setting - In the first year's data, EDC and Bank Street were separated off at the upper end; the second year, BE, Bank Street, and Gotkin were at the upper end of the scale (Table D-10). Although contingency management programs make extensive use of extrinsic motivation, the sequence of activities which build involvement have warranted checking the item for intrinsic motivation with some frequency in these classrooms.

Factor 6 - Positively Focused Teaching - Programs are widely separated by this factor and the F's are the largest for both years (Table D-11). The BE program stands high and is widely separated from the next highest program both years. The EDC program stands lowest and is widely separated from the rest of the programs in the first year's data, but is joined by the Nimnicht and Tucson programs in the second year's data. These findings appear to agree with the objectives of the programs. The teacher direction present in a teacher operated learning program sets off BE classrooms. In contrast, EDC, Nimnicht, and Tucson classrooms appear there as ones in which the teacher does not take a central role in "teaching" children, but encourages pupil independence in the learning process.

Table D-10

Multiple Range Test - Teacher Practices Observation Record

Factor 5 - Intrinsic Motivation in a Task Setting

Sponsor	1969 Mean	NSR*	S.D.	N	Sponsor	1970 Mean	NSR*	S.D.	N
EDC	52.18		3.93	8	BE	53.35		6.51	8
Bank St.	51.81		3.20	8	Bank St.	52.70		5.76	8
BE	50.66		4.90	8	Gotkin	52.70		5.24	8
Gotkin	50.58		3.30	8	Nimnicht	50.90		4.90	8
PE	50.58		2.14	8	Tucson	49.88		8.17	8
Nimnicht	49.91		2.52	8	EDC	49.70		7.33	8
Comp.	48.45		2.64	14	PE	49.65		4.35	8
Tucson	47.06		3.84	8	Comp.	46.57		4.53	14
F = 2.24 $p < .05$					F = 1.54 N.S.				

*Nonsignificant ranges.

Table D-11

Multiple Range Test - Teacher Practices Observation Record

Factor 6 - Positively Focused Teaching

Sponsor	1969 Mean	NSR*	S.D.	N	Sponsor	1970 Mean	NSR*	S.D.	N
BE	60.88		5.22	8	BE	60.99		2.56	8
Comp.	52.12		3.97	14	Gotkin	52.71		4.03	8
PE	50.93		2.46	8	Comp.	50.97		4.92	14
Bank St.	49.08		3.22	8	Bank St.	50.54		5.27	8
Gotkin	48.57		2.46	8	PE	49.59		4.82	8
Nimnicht	47.58		3.80	8	Tucson	45.78		3.12	8
Tucson	46.71		3.42	8	Nimnicht	45.39		5.21	8
EDC	42.53		3.29	8	EDC	44.31		4.27	8
F = 17.69 $p < .01$					F = 11.74 $p < .01$				

*Nonsignificant ranges.

Florida Affective Categories System (1969)

Factor 1 - Free Choice vs Structured Learning in Groups - The finding that EDC classrooms stand high in freedom of choice for pupils seems closely aligned with program rationale, as does the standing of the BE program at the low end of the factor (Table D-12). The standing of Comparison classrooms toward the lower end of the factor agrees with the common conception of classrooms in general. However, the nature of the structuring done by the Comparison teacher is quite different from that in BE classrooms; subjectively this is true, and other factors support and clarify this.

Factor 2 - Intermittent Work vs Group Singing and Games - The multiple range test (Table D-12) showed two homogeneous groups, indicating that the Nimnicht program differs from the others at the high end, perhaps reflecting the transition of activities as pupils move from one to another of the various learning activities. Comparison classrooms are set off at the lower end of the factor, perhaps reflecting a larger proportion of activities of the total class. The factor does not seem particularly clear, and has one of the lowest F's of the FLAC factors.

Factor 3 - Warm Emotional Climate - The data of Table D-13 show two homogeneous subsets which indicate that Comparison classrooms differ from Nimnicht classrooms which stand highest on the factor, but program classrooms do not differ one from another. Again, the overall F was not significant. This is an objective which all programs value.

Factor 4 - Teacher Negative Affect vs Pupil Work and Socialization with Adults - The data of Table D-13 show two homogeneous subsets, indicating that the Tucson, BE, and EDC programs show less teacher negative affect and/or more pupil work and socialization than do Comparison classrooms. The avoidance of

Table D-12

Multiple Range Test - Florida Affective Categories - 1969

Factor 1 - Free Choice vs Structured Learning in Groups

Sponsor	Mean	NSR*	S.D.	N
EDC	57.61		6.47	8
Nimnicht	55.76		4.25	8
PE	53.11		1.83	8
Bank St.	52.74		5.76	8
Gotkin	52.70		2.39	8
Tucson	51.63		2.72	8
Comp.	47.36		5.09	14
BE	45.51		3.38	8

F = 7.60**

Factor 2 - Intermittent Work vs Group Singing or Games

Sponsor	Mean	NSR*	S.D.	N
Nimnicht	53.89		5.31	8
Bank St.	50.54		3.03	8
Tucson	50.31		5.81	8
PE	50.25		6.67	8
EDC	49.81		6.17	8
BE	49.28		6.84	8
Gotkin	47.19		3.56	8
Comp.	46.79		8.06	14

F = 1.21

Table D-13

Multiple Range Test - Florida Affective Categories - 1969

Factor 3 - Warm Emotional Climate

Sponsor	Mean	NSR*	S.D.	N
Nimnicht	54.20		4.65	8
EDC	53.06		5.34	8
BE	52.38		6.99	8
Tucson	52.11		3.60	8
PE	51.03		5.57	8
Bank St.	50.45		6.01	8
Gotkin	49.48		3.25	8
Comp.	46.93		8.47	14

F = 1.54

Factor 4 - Teacher Negative Affect vs Pupil Work and Socialization with Adults

Sponsor	Mean	NSR*	S.D.	N
Comp.	54.11		5.73	14
Nimnicht	52.44		8.03	8
PE	52.18		4.32	8
Gotkin	50.04		3.47	8
Bank St.	49.70		6.69	8
Tucson	47.70		4.74	8
EDC	47.63		3.29	8
BE	47.10		6.45	8

F = 2.13

correction or criticism of pupils in the Tucson program is an important aspect of program rationale; and the BE program stresses reinforcement of desired behaviors so that criticism of pupils is relatively infrequent. A supportive climate for pupils is also an important aspect of the EDC program.

Factor 5 - Pupil Free to Withdraw, Seek Reassurance, Pretend, or Express Negative Affect. The data of Table D-14 show that the EDC program is widely separated from other programs and Comparison classrooms. The data illustrate the freedom and autonomy of the pupils in the EDC program.

Factor 6 - Teacher Neutral Control vs Teacher Support in Task Settings - The results of the multiple range test show three homogeneous groupings, and the overall F is significant (see Table D-14). At first it seems paradoxical to find the EDC program, in which there is a great deal of freedom for pupils, at the top of this factor, and the BE program, in which there is little autonomy for pupils, at the bottom of the factor. The issue seems to be the kind of freedom. As indicated in the body of the report, Factor 1 represents a different dimension, interpreted as a lack of structure in which, in extreme cases, the teacher apparently feels occasional need to intervene firmly (reflected in this factor). The structure of the BE program apparently minimizes the need for control as this factor identifies it.

Table D-14

Multiple Range Test - Florida Affective Categories - 1969

Factor 5 - Pupil Free to Withdraw Seek Reassurance, Pretend or Express Negative Affect

Factor 6 - Teacher Neutral Control vs Teacher Support in Task Settings

Sponsor	Mean	NSR*	S.D.	N	Sponsor	Mean	NSR*	S.D.	N
EDC	58.26		4.77	8	EDC	55.21		3.26	8
Bank St.	52.88		7.53	8	Gotkin	53.45		6.34	8
PE	52.21		4.51	8	Comp.	52.13		6.37	14
Nimnicht	52.13		3.95	8	Tucson	49.98		3.95	8
Gotkin	51.48		3.09	8	Bank St.	49.80		4.26	8
Tucson	50.63		4.02	8	PE	48.83		6.95	8
Comp.	50.21		5.60	14	Nimnicht	46.98		5.00	8
BE	48.53		4.78	8	BE	46.85		6.62	8
F = 2.72*					F = 2.37*				

Florida Climate and Control System (1970)

Factor 1 - Teacher Negative Control - This factor separates programs into two groups as shown in Table D-15. The Nimnicht and Tucson programs are separated from other programs at the lower end of the scale, and the Gotkin and Bank Street programs are separated off at the upper end. It is the subjective impression of observers that the occurrence of this sort of classroom in the latter two programs appeared primarily in one school for each program -- schools which were sharply different the third year of the program. In a sense, it seems unfortunate to report these data in relation to programs in that they appear to be largely school effect. Both were schools undergoing change, and this stress was apparently reflected in classrooms. In addition, the Gotkin program was the only one for which the entire sample was from large cities, where stresses more often occur.

Factor 2 - Pupil Freedom vs Teacher Structured Activity - The pattern of separations for this factor (Table D-15) is quite similar to that of FLAC Factor 1 for the 1969 data. The Nimnicht and EDC programs are set off at the top of the factor, with BE set off at the lower end of the factor, and with the other programs broken up into overlapping ranges. Again, the self-directed activity of pupils specified in the rationales of the EDC and Nimnicht programs is shown, and programmed learning directed by the teacher appears for the BE program.

Factor 3 - Warm Climate - Programs are discriminated statistically significantly on the factor, with three groups being identified as homogeneous. (See Table D-16). Depending on the range examined, the BE program or the BE program plus the Nimnicht program are set off at the upper end of the distribution, and the Comparison, Gotkin, and PE programs are set off at the lower end.

Factor 4 - Pupil Negative Behavior - The two subgroups appear to be created by the Gotkin program being set apart at the high end of the scale.

Table D-15

Multiple Range Test - Florida Climate and Control System - 1970

Factor 1 - Teacher Negative Control

Sponsor	Mean	NSR*	S.D.	N
Gotkin	55.09		7.53	8
Bank St.	54.51		8.07	8
Comp.	51.95		6.69	14
PE	50.85		4.22	8
BE	49.57		4.81	8
EDC	48.38		4.04	8
Nimnicht	45.92		5.48	8
Tucson	45.10		4.67	8

F = 3.10**

Factor 2 - Pupil Freedom vs Teacher Structured Activity

Sponsor	Mean	NSR*	S.D.	N
Nimnicht	57.60		3.23	8
EDC	57.13		3.24	8
Tucson	50.85		1.39	8
Bank St.	49.85		3.93	8
Gotkin	48.81		4.16	8
PE	47.31		5.32	8
Comp.	46.65		4.06	14
BE	44.31		2.03	8

F = 14.50**

Table D-16

Multiple Range Test - Florida Climate and Control System - 1970

Factor 3 - Warm Climate

Sponsor	Mean	NSR*	S.D.	N
BE	55.51		4.69	8
Nimnicht	53.95		5.03	8
Bank St.	51.44		6.12	8
EDC	51.28		4.96	8
Tucson	49.30		6.90	8
Comp.	47.58		5.91	14
Gotkin	47.11		4.90	8
PE	45.91		2.61	8

F = 3.43**

Factor 4 - Pupil Negative Behavior

Sponsor	Mean	NSR*	S.D.	N
Gotkin	56.59		5.19	8
Nimnicht	51.84		5.30	8
Bank St.	51.18		7.40	8
PE	49.89		3.24	8
EDC	49.79		4.59	8
Comp.	49.07		6.17	14
Tucson	48.01		4.75	8
BE	47.69		4.80	8

F = 2.27*

(See Table D-16). It seems probable that the position of this program again reflects the one school, cited earlier, in which considerable tension existed.

Factor 5 - Structured Teacher Behavior with Praise - The program which stands highest on this factor is the BE program (Table D-17). In a sense the factor seems to represent two aspects of BE rationale, in which the programmed learning materials structure the behavior of the teacher, and the teacher motivates the pupils by the use of praise. Another of the ranges separates off the Gotkin program at the upper end, following the BE program, presumably because of the extent to which the Gotkin materials structure the behavior of teachers in his classrooms.

Factor 6 - Pupil Conforming Behavior - There are no discriminations between protrams, and the F suggests that variability within the programs is larger than differences between programs (Table D-17).

Factor 7 - Effective Personal Communication - The factor creates three subgroups, and discriminates programs significantly (Table D-18). In one separation the BE program is placed alone at the top; in another the BE and Nimnicht programs are set off together at the top of the range, The Gotkin program is separated at the lower end, perhaps as a consequence of a film that was circulating through classrooms during the days in which observation was being conducted in one of the two cities from which the Gotkin data came. With samples as small as these, such incidental occurrences can have considerable effect on the placement of a group.

Table D-17

Multiple Range Test - Florida Climate and Control System - 1970

Factor 5 - Structured Teacher Behavior with Praise

Sponsor	Mean	NSR*	S.D.	N
BE	60.60		3.79	8
Gotkin	51.53		3.45	8
Tucson	50.05		2.67	8
Comp.	49.35		2.84	14
Nimnicht	49.08		2.78	8
Bank St.	48.33		3.54	8
EDC	46.85		3.28	8
PE	46.60		5.58	8

F = 12.83**

Factor 6 - Pupil Conforming Behavior

Sponsor	Mean	NSR*	S.D.	N
BE	51.67		5.31	8
Bank St.	51.38		4.73	8
EDC	51.29		4.73	8
Gotkin	49.98		4.61	8
Comp.	49.83		6.17	14
PE	49.65		5.06	8
Tucson	49.33		7.90	8
Nimnicht	48.02		3.05	8

F = .42 N.S.

Table D-18

Multiple Range Test - Florida Climate and Control System - 1970

Factor 7 - Effective, Personal Communication

Sponsor	Mean	NSR*	S.D.	N
BE	58.13		7.11	8
Nimnicht	54.10		4.19	8
PE	49.48		2.50	8
Tucson	49.15		8.32	8
Bank St.	48.93		5.55	8
Comp.	48.60		5.74	14
EDC	47.73		5.30	8
Gotkin	45.83		4.62	8

F = 3.94**

Reciprocal Category System

Factor 1 - Drill with Teacher Acceptance and Pupil Initiation vs Teacher and Pupil Initiation - The BE program is separated from the others both years (Table D-19). This is not surprising since BE teachers spend much of their time interacting with subgroups of pupils working on programmed learning materials, and one of their objectives is to foster a high rate of pupil response. The pattern is not the usual "drill" in that the teachers do talk at greater length than would be true of a rapid-fire drill session, they accept answers, and praise pupils at length.

Factor 2 - Varied Pupil Directed Interaction - The factor discriminates significantly between programs both years, but the order shifts. (See Table D-20). The EDC program stands at or near the upper end of the scale both years, the Nimnicht program is set off at the upper end the second year, and BE is set off at the lower end of the scale the second year. The other programs are not separated from each other. The high standings of the EDC and Nimnicht programs seem reasonable in that in both pupils are freer to interact with each other in various ways. Correspondingly, the programmed learning context in which much of the interaction of teacher and pupils occurs in the BE program places the pupil in the position of responding to the teacher, rather than directing the interaction.

Factor 3 - Warm, Nonevaluative Teaching vs Teacher Criticism - Although the F is not significant either year, the multiple range test separates programs into two groups the second year -- the Tucson program is separated from the rest of the group at the upper end, and the Bank Street and Comparison groups are separated off at the lower end (Table D-21). The high standing of the Tucson program appears to relate to its commitment to a nonevaluative climate.

Table D-19

Multiple Range Test - Reciprocal Category System

Factor 1 - Drill with Teacher Acceptance and Pupil Initiation vs Teacher and Pupil Initiation

Sponsor	1969 Mean	NSR*	S.D.	N	Sponsor	1970 Mean	NSR*	S.D.	N
BE	56.31		5.25	8	BE	59.97		3.41	8
PE	52.37		2.66	8	Gotkin	51.45		3.73	8
Gotkin	49.97		3.74	8	PE	51.11		5.96	8
Bank St.	49.76		3.38	8	Comp.	49.94		6.43	13
Comp.	48.95		4.07	14	Bank St.	48.45		4.49	6
Tucson	48.49		3.17	8	EDC	46.17		6.45	6
EDC	48.24		1.34	8	Tucson	46.10		6.85	8
Nimnicht	46.13		5.60	8	Nimnicht	44.84		7.00	8

F = 5.12 $p < .01$ F = 5.39 $p < .01$

Table D-20

Multiple Range Test - Reciprocal Category System

Factor 2 - Varied Pupil Directed Interaction

Sponsor	1969 Mean	NSR*	S.D.	N	Sponsor	1970 Mean	NSR*	S.D.	N
EDC	55.26		3.58	8	Nimnicht	57.16		6.52	8
Gotkin	52.62		5.86	8	EDC	53.23		3.85	6
BE	50.39		3.69	8	Tucson	52.48		6.00	8
Nimnicht	49.67		4.43	8	Gotkin	51.60		3.53	8
PE	48.89		3.18	8	Comp.	48.31		7.00	13
Comp.	48.76		4.66	14	PE	47.75		5.68	8
Bank St.	48.12		4.27	8	Bank St.	47.10		4.17	6
Tucson	47.43		6.50	8	BE	43.87		6.92	8

F = 2.58 $p < .05$ F = 4.06 $p < .01$

Table D-21

Multiple Range Test - Reciprocal Category System

Factor 3 - Warm, Nonevaluative Teaching vs Teacher Correction

Sponsor	1969 Mean	NSR*	S.D.	N	Sponsor	1970 Mean	NSR*	S.D.	N
Tucson	55.69		7.80	8	Tucson	55.40		6.41	8
BE	54.47		5.26	8	BE	52.98		3.54	8
Bank St.	49.28		6.70	8	EDC	51.25		6.25	6
EDC	49.16		9.81	8	Nimnicht	50.50		6.82	8
Comp.	48.77		10.12	14	PE	48.73		7.62	8
PE	48.09		5.65	8	Gotkin	48.73		6.45	8
Nimnicht	46.25		11.48	8	Comp.	47.26		5.89	13
Gotkin	46.13		5.25	8	Bank St.	45.69		3.91	6

F = 1.45 N.S.

F = 2.15 N.S.

Table D-22

Multiple Range Test - Reciprocal Category System

Factor 4 - Teacher Amplification in Extended Talk

Sponsor	1969 Mean	NSR*	S.D.	N	Sponsor	1970 Mean	NSR*	S.D.	N
Gotkin	51.80		3.34	8	PE	52.15		6.30	8
PE	50.85		1.69	8	Comp.	51.70		5.23	13
Tucson	50.42		3.46	8	Tucson	51.60		6.10	8
Comp.	49.94		3.03	14	BE	50.44		3.78	8
Bank St.	49.32		2.53	8	Gotkin	49.83		5.33	8
BE	49.22		5.82	8	Bank St.	49.28		5.86	6
Nimnicht	49.14		3.87	8	EDC	48.08		6.95	6
EDC	48.62		3.16	8	Nimnicht	46.31		4.94	8

F = 0.73 N.S.

F = 1.07 N.S.

The low standing of the Bank Street program the second year probably relates to the situation of one of its schools, as cited in the body of the report.

Factor 4 - Teacher Amplification in Extended Talk - The factor does not discriminate programs, and the F suggests that variability within programs and variability between programs are essentially equal (See Table D-22).

Factor 5 - Pupil Talk - The factor does not discriminate between programs either year, with the F suggesting that variability within programs is as large or larger than between programs. (See Table D-23).

Factor 6 - Teacher Initiation with Pupil Interruption vs Teacher Question - Programs are discriminated significantly both years, with two groups the first year and three the second (Table D-24). The BE program is separated off at the lower end both years; the Tucson program was set off at the upper end the second year. The rationale of the BE program limits extended teacher initiation in favor of soliciting pupil responses.

Factor 7 - Teacher Direction vs Pupil Initiation - The factor did not discriminate significantly the first year but discriminates highly significantly between programs the second year (Table D-25). Although four ranges are identified, the gaps between means suggest three groupings: BE, Comparison and Gotkin at the upper end; PE, Bank Street and Tucson in the midrange; and EDC and Nimnicht at the lower end. The extreme positions appear to agree with program rationale. Teacher direction of learning is a central aspect of the programming of learning (BE), and minimal direction of pupils seems equally central to the Nimnicht classrooms in which pupils are expected to learn from self-teaching equipment and EDC classrooms in which the child is exposed to rich materials and encouraged to follow his interests to a large degree.

Table D-23

Multiple Range Test - Reciprocal Category System

Factor 5 - Pupil Talk

Sponsor	1969 Mean	NSR*	S.D.	N	Sponsor	1970 Mean	NSR*	S.D.	N
EDC	52.04		6.01	8	Nimnicht	53.43		5.35	8
BE	51.78		9.27	8	BE	52.89		7.51	8
Tucson	51.75		8.40	8	Tucson	52.37		7.08	8
Bank St.	49.84		7.34	8	PE	50.45		7.69	8
Comp.	49.32		7.09	14	EDC	49.26		7.80	6
PE	49.25		6.20	8	Bank St.	48.64		10.41	6
Gotkin	49.18		12.62	8	Comp.	46.96		8.51	13
Nimnicht	47.50		5.80	8	Gotkin	46.13		3.70	8
F = 0.33 N.S.					F = 1.18 N.S.				

Table D-24

Multiple Range Test - Reciprocal Category System

Factor 6 - Teacher Initiation with Pupil Interruption vs Teacher Question

Sponsor	1969 Mean	NSR*	S.D.	N	Sponsor	1970 Mean	NSR*	S.D.	N
Nimnicht	54.55		7.01	8	Tucson	55.90		5.27	8
Comp.	51.69		4.62	14	Nimnicht	53.24		4.73	8
Tucson	50.93		11.75	8	Comp.	52.51		9.43	13
PE	49.82		6.33	8	EDC	51.52		4.72	6
Bank St.	49.71		5.57	8	Bank St.	49.43		4.92	6
EDC	49.40		7.47	8	PE	48.25		4.67	8
Gotkin	49.20		6.30	8	Gotkin	47.25		5.30	8
BE	39.73		4.57	8	BE	39.85		5.11	8
F = 3.22 $p < .01$					F = 5.10 $p < .01$				

Table D-25

Multiple Range Test - Reciprocal Category System

Factor 7 - Teacher Direction vs Pupil Initiation

Sponsor	1969 Mean	NSR*	S.D.	N	Sponsor	1970 Mean	NSR*	S.D.	N
Gotkin	51.96		3.70	8	BE	55.48		4.03	8
PE	51.39		4.13	8	Comp.	53.80		5.97	13
Comp.	51.31		5.68	14	Gotkin	53.33		4.87	8
Bank St.	49.97		4.42	8	PE	49.25		8.13	8
BE	49.92		3.76	8	Bank St.	49.09		6.38	6
Tucson	49.34		5.75	8	Tucson	48.27		5.10	8
Nimnicht	47.65		4.89	8	EDC	43.08		5.78	6
EDC	46.62		4.75	8	Nimnicht	42.27		7.86	8
F = 1.30 N.S.					F = 4.97		$p < .01$		

Table D-26

Multiple Range Test - Reciprocal Category System

Factor 8 - Supportive Pupil Talk

Sponsor	1969 Mean	NSR*	S.D.	N	Sponsor	1970 Mean	NSR*	S.D.	N
EDC	54.21		7.85	8	Nimnicht	55.46		8.28	8
Gotkin	53.38		8.82	8	Gotkin	54.59		7.60	8
PE	51.67		7.63	8	Tucson	51.04		4.61	8
Bank St.	50.92		7.29	8	EDC	50.89		3.70	6
BE	49.92		5.54	8	PE	50.25		7.68	8
Tucson	48.92		5.42	8	BE	48.92		6.57	8
Comp.	47.62		1.58	14	Comp.	48.36		4.02	13
Nimnicht	47.50		1.41	8	Bank St.	46.50		1.22	6
F = 1.58 N.S.					F = 2.05 N.S.				

Factor 8 - Supportive Pupil Talk - As mentioned in the body of the report, this factor appears to be a reflection of the achievement of program objectives directed at fostering supportive social behavior among pupils. The discrimination between programs did not result in a significant F either year (Table D-26). The multiple range test separated off the EDC program at the upper end of the scale the first year, and the Gotkin and Nimnicht programs the second year. Bank Street and Comparison classrooms were separated off at the lower end of the scale the second year.

This measure, made up of pupil talk, may be subject to the bias cited in the Procedure section that some programs more than others organize pupil activity in such a way that their talk is audible. Pupils are likely to be more audible in BF classrooms, for instance, and less so in EDC classrooms.

Cognitive Taxonomy

Factor 1 - Highly Focused Learning Tasks - The multiple range tests for each of the two years place the Becker-Engelmann program at the top of the scale (Table D-27). There is no consistency in the programs separated at the lower end of the factors the two years. The position of the BE program seems in line with its orientation toward fostering the development of skills. Other programs shift extensively in their relative rank order in the remainder of the range so that probably only the BE position can be taken as meaningful.

Factor 2 - Narrow vs Broad Answer - Although the positive pole is labeled "narrow" it represents a high cognitive level; the negative pole appears to be less subject-matter oriented, and at a lower cognitive level, but no one answer would be expected. Each year, programs were separated into two groups, but the F's were not significant either year. (See Table D-28). The first year, the BE program was separated off at the upper end of the scale, the second year it was a part of the top group along with Comparison classrooms and the Nimnicht program. Both years, the EDC program was separated off at the lower end of the scale. These separations seemed to fit satisfactorily with the concern for fostering subject matter skills, which is typical of BE classrooms, and which has been recognized as a primary concern of Comparison classrooms. Nimnicht classrooms are also high on this factor and appear to support the development of subject matter skills, although they do so in a different way than the other two programs. The EDC program, in contrast, does not make that sort of skill development a central issue in the early years.

Factor 3 - Moderately Focused Learning Tasks - The factor discriminates significantly between programs the second year, and approaches significance the first year (Table D-29). Two groups are set off each year, with BE at the

Table D-27

Multiple Range Test - Cognitive Taxonomy

Factor 1 - Highly Focused Learning Tasks

Sponsor	1969 Mean	NSR*	S.D.	N	Sponsor	1970 Mean	NSR*	S.D.	N
BE	54.78		5.30	8	BE	57.06		5.37	8
PE	53.23		6.85	8	Gotkin	52.14		4.13	8
Bank St.	50.96		7.60	8	Nimnicht	51.80		5.26	8
EDC	49.94		4.93	8	Comp.	48.99		6.10	13
Tucson	48.73		7.17	8	Bank St.	48.95		4.92	6
Gotkin	48.51		3.77	8	PE	48.38		3.99	8
Nimnicht	48.19		5.14	8	EDC	46.77		2.82	6
Comp.	47.33		7.02	14	Tucson	46.30		4.55	8
F = 1.60					F = 3.98**				

Table D-28

Multiple Range Test - Cognitive Taxonomy

Factor 2 - Broad vs Narrow Answer

Sponsor	1969 Mean	NSR*	S.D.	N	Sponsor	1970 Mean	NSR*	S.D.	N
BE	53.58		4.79	8	Nimnicht	51.99		3.95	8
Bank St.	52.78		5.79	8	Comp.	51.31		3.26	13
PE	51.00		5.76	8	BE	50.41		3.27	8
Comp.	50.66		5.52	14	Bank St.	50.40		3.04	6
Tucson	50.18		4.81	8	Tucson	49.93		2.45	8
Gotkin	48.29		3.34	8	Gotkin	49.54		2.55	8
Nimnicht	47.64		2.89	8	PE	48.28		4.24	8
EDC	47.14		7.40	8	EDC	46.32		2.43	6
F = 1.61					F = 2.21*				

Table D-29

Multiple Range Test - Cognitive Taxonomy

Factor 3 - Moderately Focused Learning Tasks

1969					1970				
Sponsor	Mean	NSR*	S.D.	N	Sponsor	Mean	NSR*	S.D.	N
BE	53.91		5.98	8	BE	54.20		3.04	8
PE	53.28		5.69	8	Gotkin	52.31		3.78	8
EDC	51.58		6.79	8	Nimnicht	51.23		2.34	8
Nimnicht	50.39		5.30	8	Bank St.	50.70		5.20	6
Bank St.	50.38		5.74	8	PE	49.94		4.61	8
Gotkin	48.05		6.26	8	Tucson	47.98		3.70	8
Tucson	47.33		4.44	8	Comp.	47.72		4.67	13
Comp.	46.04		6.66	14	EDC	47.53		2.08	6
F = 2.13					F = 3.15**				

Table D-30

Multiple Range Test - Cognitive Taxonomy

Factor 4 - Phonics

1969					1970				
Sponsor	Mean	NSR*	S.D.	N	Sponsor	Mean	NSR*	S.D.	N
BE	55.60		4.07	8	BE	55.13		6.76	8
PE	52.13		3.44	8	Bank St.	53.07		5.53	6
Tucson	49.96		4.16	8	Tucson	50.11		4.81	8
Nimnicht	49.36		5.44	8	Comp.	49.79		4.92	13
EDC	48.99		6.00	8	Gotkin	49.10		5.30	8
Comp	48.89		4.36	14	PE	48.76		4.92	8
Bank St.	48.55		4.84	8	EDC	47.90		2.24	6
Gotkin	47.26		3.76	8	Nimnicht	47.01		3.69	8
F = 2.70*					F = 2.21*				

upper end both years, accompanied by PE the first year and Gotkin the second year. Comparison classrooms are set off at the lower end both years, joined by EDC and Tucson the second year. The placement of the BE program appears to reflect its emphasis on teaching skills, and related broader generalizations such as classification. The placement of EDC classrooms also seems reasonable in relation to their lower emphasis on teaching skills. The position of Comparison classrooms seems surprising in relation to the expectation that teaching of skills would be emphasized there.

It is probably relevant to mention again the caution cited in the Procedure section, that some programs are likely to be more completely represented on tape than others -- probably BE would be better represented and EDC less well represented in terms of the proportion of pupil activity which is oral, and the proportion of what is oral that is audible. To some degree, the placement of programs on the data of the Cognitive Taxonomy is probably biased in this respect.

Factor 4 - Phonics - Programs were discriminated significantly, with two groups created both years. The BE program was set off at the upper end of the dimension both years (Table D-30), and again, the BE emphasis on skill teaching seems relevant.

Factor 5 - Information Giving and Receiving - Programs were discriminated significantly the first year but not the second (Table D-31). In the first year's data, the PE program is set off at the upper end of the factor, the Tucson at the lower end, joined by Bank Street and Gotkin set off by other ranges. Although Parent Education is not primarily a classroom oriented program, it has had a varying emphasis on a Piagetian theory of child development. Pupils' establishment of an adequate base of information (as well as higher level cognitive activities) is relevant to that theoretical orientation. Perhaps the

Table D-31

Multiple Range Test - Cognitive Taxonomy

Factor 5 - Information Giving and Receiving

Sponsor	1969 Mean	NSR*	S.D.	N	Sponsor	1970 Mean	NSR*	S.D.	N
PE	54.38		5.43	8	BE	51.81		6.65	8
Nimnicht	51.70		5.80	8	Comp.	51.33		4.16	13
BE	51.63		5.65	8	Gotkin	50.18		4.50	8
EDC	51.60		6.95	8	EDC	49.80		6.63	6
Comp.	49.29		6.30	14	Bank St.	49.75		4.21	6
Gotkin	47.41		5.12	8	Nimnicht	48.80		5.18	8
Bank St.	47.38		6.73	8	Tucson	48.40		5.53	8
Tucson	43.69		4.78	8	PE	48.05		5.96	8
F = 2.61*					F = .56 N.S.				

Table D-32

Multiple Range Test - Cognitive Taxonomy

Factor 6 - Complex Thinking

Sponsor	1969 Mean	NSR*	S.D.	N	Sponsor	1970 Mean	NSR*	S.D.	N
BE	53.25		5.28	8	Nimnicht	52.56		5.02	8
Bank St.	51.25		3.94	8	Gotkin	51.48		6.35	8
Nimnicht	50.14		5.40	8	Comp.	50.80		4.87	13
PE	49.99		5.28	8	PE	50.65		6.21	8
Comp.	49.71		4.75	14	BE	49.40		4.14	8
EDC	49.66		3.73	8	EDC	49.15		3.71	6
Gotkin	49.34		5.76	8	Bank St.	48.80		2.16	6
Tucson	48.86		5.62	8	Tucson	48.69		5.63	8
F = .62 N.S.					F = .59 N.S.				

failure of programs to separate the second year (and the narrowed range) reflects increasing concern of all sponsors with this objective, although this interpretation is speculative.

Factor 6 - Complex Thinking - This factor did not discriminate between programs either year, and the F each year suggests that variability within programs is as great or greater than differences between programs (Table D-32). This seems a surprising finding in the light of differences between programs in their emphasis on inquiry learning. It seems possible that the program bias on audibility cited earlier may have the effect of artificially minimizing program differences on this factor.

Appendix E

Table E-1

Reciprocal Category Measures

Variable	Description
1	Teacher warms, informalizes the climate. The sum of column 1.
2	Teacher accepts. The sum of column 2.
3	Teacher amplifies. The sum of column 3.
4	Teacher elicits. The sum of column 4.
5	Teacher responds. The sum of column 5.
6	Teacher initiates. The sum of column 6.
7	Teacher directs. The sum of column 7.
8	Teacher corrects. The sum of column 8.
9	Teacher cools, formalizes. The sum of column 9.
10	Pupil elicits. The sum of 14.
11	Pupil responds. The sum of 15.
12	Pupil initiates. The sum of 16.
13	Pupil directs. The sum of 17.
14	Pupil corrects. The sum of 18.
15	Confusion (does not include uncodeable tape). The sum of column 20.
16	Teacher talk, percent. The sum of columns 1-9 divided by columns 1-9 plus columns 11-19.
17	Teacher acceptance-rejection, percent. The sum of columns 1, 2, and 3 divided by columns 1, 2, and 3 plus 8 and 9.
18	Pupil initiation. The sum of column 16 divided by total student talk, the sum of columns 11-19.

Table E-1 - Continued

Variable	Description
19	Student response to teacher. Rows 1-9 for column 15, divided by total student talk.
20	Pupil-pupil talk. The sum of rows 11-19 for columns 11-19.
21	Teacher extended indirect. The sums of the cells in rows 1, 2, and 3 for columns 1, 2, and 3.
22	Teacher extended direct. The sum of the cells in rows 7-9 for columns 7-9.
23	Teacher revised I/D. This measure involves teacher indirect response (rows 11-19 for columns 1-3), and teacher direct response (rows 11-19 for columns 7-9). The percentage is made up of indirect response divided by indirect response plus direct response.
24	Pupil positive participation, percent. Positive participation divided by positive participation plus negative participation (rows 15, 16, for columns 11-13/rows 15, 16 for columns 11-13, plus rows 15, 16 for columns 17-19).
25	Pupil revised I/D_1. This measure includes pupil extended indirect (rows 11-19 for columns 11-13); and pupil extended direct (rows 11-19 for columns 17-19); with pupil extended indirect divided by pupil extended direct, plus pupil extended indirect.
26	Teacher narrow question. The sum of the 4-15 cell.
27	Teacher broad question. The sum of the 4-16 cell.
28	Pupil broad question. The sum of the 14-16 cell.
29	Pupil substantive interruption. The row 6, columns 14-16 cells.
30	Pupil direct interruption. The row 6, columns 17-19 cells.
31	Total pupil interruption. The total of pupil substantive interruption plus pupil direct interruption.
32	Pupil question, teacher question. The 14-4 cell.
33	Pupil question, teacher response. The 14-5 cell.